

NATURAL HISTORY,

GENERAL AND PARTICULAR,

BY THE

COUNT DE BUFFON.



VOL. IX.

HISTORY OF QUADRUPEDS.

NATURAL HISTORY,
GENERAL AND PARTICULAR,
BY THE
COUNT DE BUFFON,

ILLUSTRATED WITH ABOVE SIX HUNDRED COPPER PLATES.

THE
HISTORY OF MAN AND QUADRUPEDS

TRANSLATED, WITH NOTES AND OBSERVATIONS,

BY WILLIAM SMELLIE,

MEMBER OF THE ANTIQUARIAN AND ROYAL SOCIETIES OF EDINBURGH.

A NEW EDITION,

**CAREFULLY CORRECTED AND CONSIDERABLY ENLARGED, BY MANY
ADDITIONAL ARTICLES, NOTES, AND PLATES.**

AND

SOME ACCOUNT OF THE LIFE OF M. DE BUFFON.

BY WILLIAM WOOD, F. L. S.

IN TWENTY VOLUMES.

VOL. IX.

L O N D O N :

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E R R A T A.

Page 271, line 1, for "sweet" read fresh.

312, 5 from bottom, for "six" read ten.

321, 6 from bottom, for "sweet" read fresh.



Two-toed SLOTH.

NATURAL HISTORY

THE TWO-TOED* AND ~~THREE~~ TOED SLOTHS†.

THESE two animals have been denominated *sloths*, on account of the slowness of their movements, and the difficulty with which they

* BRADYPUS.

CHARACTER GENERICUS.

Dentes primores nulli utrinque.

Lanarii obtusi, solitarii, molaribus longiores, occurrunt.

Molares utrinque quinque, obtusi.

Corpus pilis tectum.

CHARACTER SPECIFICUS.

BRADYPUS DIDACTYLUS. B. manibus didactylis, cauda nulla. — *Linn. Syst. Nat. Gen. i. p. 51.* — *Seba, Mus. i. pl. 65.* — *Erxleb. Mamm. p. 89.*

Bradypus pedibus anticis didactylis, posticis tridactylis. — *Briss. Quadr. p. 22.*

TARDIGRADUS ZEYLANICUS. — *Seba, Mus. i. p. 54, pl. 33, fig. 4, et pl. 34, fig. 1, bona.*

THE TWO-TOED AND

walk. Though they resemble each other in many respects, they differ, both externally and internally, by characters so marked, that it is impossible not to recognise them as very dis-

L'UNAU.—*Buff. Hist. Nat. par Sonn.* xxxii. p. 125, pl. 6.

TWO-TOED SLOTH. — *Penn. Hist. Quadr.* ii. p. 242.—*Mus. Lever.* i. p. 79, No. ii. pl. 7.—*Shaw's Gen. Zool.* i. p. 156, pl. 46.

HABITAT

in Zeylona, injuste id negante Buffonio; in Guinea, viz enim dubito, idem animal esse Potto Guineensium. Neque etiam Americæ australis exul plane videtur*.

W.

The sloths have no cutting teeth in either jaw; but they have canine teeth and grinders. The fore-legs are much longer

* "Inhabits South America, and the isle of Ceylon. The last is strenuously denied by M. de Buffon, who has fixed the residence of this genus to America only: but besides the authority of Seba, who says his specimen was brought from Ceylon, a gentleman, long resident in India, and much distinguished in the literary world, has informed me he has seen this animal brought from the Paliacat mountains that lie in sight of Madras; which satisfies me that it is common to both continents. Farther inquiry is desired into the identity of this species.

"There is reason to think that it is met with also in Guinea, or at least some species of this genus; for Barbot and Bosman describe an animal by the name of *potto*, to which they give the attributes of the former, and describe as being gray; when young, red, and covered with a sort of hair as thick set as flocks of wool. Both these writers were sensible men, and, though not naturalists, were too observant of the animals of Guinea to mistake one whose characters are so strongly marked as those of the sloth."—*Penn. Hist. Quadr.* ii. p. 242.

W.

tinct species. The unau, or two-toed sloth, has no tail, and only two claws on the fore-feet: the ai, or three-toed sloth, has a tail, and three

than the hind, and the claws are long.—The two-toed sloth has a round head, short projecting nose, ears like the human, lying flat on the head, two long claws on the fore-feet, and three on the hind. The hair on the body is long and rough; in some parts curled and woolly; in some, of a pale red above, cinereous below; and in others, of a yellowish-white below, and a cinereous brown above. The length of that in the British Museum is eleven inches; I believe it is a young one: it has no tail. — *Pennant's Synops. of Quadr.* p. 321.

† CHARACTER SPECIFICUS.

BRADYPUS TRIDACTYLIS. B. pedibus tridactylis, cauda brevi. — *Linn. Syst. Nat. Gmel.* i. p. 51. — *Erxleb. Mamm.* p. 84.

Bradypus crinitus, palmis tridactylis, unguebus arcuatis. — *Brown, Jam.* p. 489.

Tardigradus pedibus anticis et posticis tridactylis. — *Briss. Quadr.* p. 21.

ARCTOPITHECUS. — *Gesn. Quadr.* p. 869.

IGNAVUS. — *Clus. Exot.* p. 372, fig. p. 373. — *Jonst. Quadr.* p. 145, pl. 62.

At, seu Tardigradus gracilis Americanus. — *Seba, Mus.* i. p. 53, pl. 33, fig. 2. bona.

L'AI. — *Buff. Hist. Nat. par Sonn.* xxxii. p. 125, pl. 8.

SLOTH. — *Ray's Synops. Quadr.* p. 245. — *Edw. Av.* pl. 220.

THREE-TOED SLOTH. — *Penn. Hist. Quadr.* ii. p. 240, pl. 91. — *Sidw's Gen. Zool.* i. p. 149, pl. 45.

HABITAT

in Americæ meridionalis arboribus.

W.

The three-toed sloth has a blunt black nose, a little lengthened, very small external ears, and eyes small, black,

claws on all the feet. The muzzle of the former is longer, the front more elevated, and the ears more apparent, than those of the latter. Their hair is also very different. The structure and situation of some parts of their viscera are likewise different. But the most remarkable distinction is derived from this singular circumstance, that the unau has forty-six ribs, and the ai only twenty-eight, which shows them to be species very remote from each other. This number of ribs, in the body of an animal so short, is an excess or error of Nature; for no animal, however large, has such a number of ribs: the elephant has only forty, the horse thirty-six, the badger thirty, the dog twenty-six, man twenty-four, &c. This difference in the structure of the sloths indicates a greater distance between these two species than between the dog and cat, which have both the same number of ribs; for external differences are nothing when compared to those which are internal: the

and heavy. From the corner of each eye, there is a dusky line. The colour of the face and throat is a dirty white. The hair on the limbs and body is long, very uneven, and of a cinereous-brown colour. The tail is short, being a mere stump. The legs are thick, long, and awkwardly placed. The face is naked. There are three toes, and three very long claws on each foot. The length of that in the British Museum is twelve inches; but it grows to the size of a middle sized fox. — *Pennant's Synops. of Quad.* p. 319.

Ai, the Brazilian name of this animal, taken from its plaintive cry, *a, i*, which it often repeats; *hay*, according to Lery; and *hau* or *hautu*, according to Thew. The *Perillo ligero* of Oviedo, and the *haut* of Nieremberg.



YOUNG three-toed SLOTHS.



ADULT three-toed SLOTH.

former may be regarded as causes, and the latter as effects only. The interior frame of animated beings is the foundation of Nature's plan ; it is the constituent form, and the origin of all figure : but the external parts are only the surface or drapery. How often have we not found, in the course of our comparative examination of animals, that a very different external appearance covered internal parts perfectly similar ; and that, on the contrary, the slightest internal distinction produced great external differences, and changed the natural dispositions, powers, and qualities of the animal ? How many animals are armed, covered, and adorned with excrescent parts, whose external structure corresponds exactly with others which are totally deprived of such appendages ? But this is not a proper place for such nice disquisitions. We shall only remark, that, in proportion as Nature is vivacious, active, and exalted in the monkey kind, she is slow, restrained, and fettered in the sloths. From a defect in their conformation, the misery of these animals is not more conspicuous than their slowness. They have no cutting teeth ; the eyes are obscured with hair ; the chops are heavy and thick ; the hair is flat, and resembles withered herbs ; the thighs are ill jointed to the haunches ; the legs are too short, ill turned, and terminated still worse : their feet have no soles, and no toes which move separately, but only two or three claws, disproportionally long, and bended downward, which

move together, and are more hurtful to their walking, than advantageous in assisting them to climb. Slowness, habitual pain, and stupidity, are the results of this strange and bungled conformation. The sloths have no weapons either offensive or defensive. They are furnished with no means of safety; for they can neither fly nor dig the earth. Confined to a small space, or to the tree under which they are brought forth, they are prisoners in the midst of space, and cannot move the length of one fathom in an hour*. They drag themselves up a tree with

* *Perillo ligero, sive canicula agilis, animal est omnium quæ viderim ignavissimum; nam adeo lente movetur, ut ad conficiendum iter longum dumtaxat quinquaginta passus, integro die illi opus sit. . . . In ædes translatum naturali sua tarditate movetur, nec a clamoratione ulla aut impulsione gradum accelerat. — Oviedo in summario Ind. Occid. cap. 23, traduit de l'Espagnol en Latin par Clusius. Exotic. lib. v. cap. 16. Tanta est ejus tarditas ut unius diei spatio vix quinquaginta passus pertransire possit. — Hernand. Hist. Mex. The Portuguese have given the name of *sloth* to a very extraordinary animal, which is of the size of an opossum. The hind part of its head is covered with a coarse mane, and its belly is so gross that it sweeps the ground. It never rises on its legs, and trails so slowly along, that in fifteen days it can hardly accomplish the length of a stone-cast. — Hist. des Indes, par Maffé, p. 71. — Descript. des Indes Occident. par Herrera, p. 252. "Tam lentus est illius gressus et membrorum motus, ut quindecim ipsis diebus ad lapidis ictum continuo fractu vix prodeat." — Pison, Hist. Bras. p. 322. Nota, This assertion of Piso, which he has borrowed from Maffé and Herrera, is much exaggerated.—This is the most sluggish of all animals: it is needless to employ greyhounds to overtake him; a tortoise is sufficient.—Desmarchais, tom. iii. p. 301. Nota, This*

much labour and pain. Their cry and interrupted accents they dare only utter during the night. All these circumstances announce the misery of the sloths, and recal to our minds those defective monsters, those imperfect sketches of Nature, which, being hardly endowed with the faculty of existence, could not subsist for any length of time, and have accordingly been struck out of the list of beings. If the regions inhabited by the sloths were not desert, but had been long occupied by men and the larger animals, these species would never have descended to our times: they would have been annihilated, as must happen in some future period. We formerly remarked, that every thing that possibly could be, really did exist; of which the sloths are a striking example. They constitute the last term of existence in the order of animals endowed with flesh and blood. One other defect

is another exaggeration. . . . They require eight or nine minutes to advance one foot to the distance of three inches, and they move one after another with equal slowness. Blows do not accelerate their pace. I have whipt some of them, in order to discover whether pain would give them any animation: but they seemed to be insensible, and I was unable to make them move faster. — *Dampier's Voyage*. "The sloths do not move fifty paces in a day. When the hunter wishes to take one of them, he may proceed with his sport, and, on his return, he will find the animal very little removed from its former place. — *Voyage à Cayenne, par Binet*, p. 341. This animal receives the epithet of *courser*, because he requires a whole day to accomplish a quarter of a league. — *Hist. de l'Orenoque, par Gumilla*, tom. ii. p. 13. *Nota*, This author seems to be the only one who approaches the truth, with regard to the slowness of these animals.

added to the number would have totally prevented their existence. To regard those bungled sketches as beings equally perfect with others, to call in the aid of final causes to account for such disproportioned productions, and to make Nature as brilliant in these as in her most beautiful animals, is to view her through a narrow tube, and to substitute our own fancies for her intentions.

Why should not some animals be created for misery, since, in the human species, the greatest number of individuals are devoted to pain from the moment of their existence? Evil, it is true, proceeds more from ourselves than from Nature. For a single person who is unhappy because he was born feeble or deformed, there are millions rendered miserable by the oppression of their superiors. The animals, in general, are more happy, because the species have nothing to fear from individuals: to them there is but one source of evil; to man there are two. Moral evil, of which he himself is the fountain, has accumulated into an immense ocean, which covers and afflicts the whole surface of the earth. Physical evil, on the contrary, is restrained within very narrow bounds: it seldom appears alone; for it is always accompanied with an equal, if not a superior good. Can happiness be denied to animals, when they enjoy freedom, have the faculty of procuring subsistence with ease, and possess more health, and organs capable of affording greater pleasure than those of the human species? Now, the generality of animals are most

liberally endowed with all these sources of enjoyment. The degraded species of sloths are perhaps the only creatures to whom Nature has been unkind, and who exhibit to us the picture of innate misery.

Let us take a closer view of the condition of these creatures. • By the want of teeth, they can neither seize prey nor feed upon flesh or herbage. Reduced to the necessity of living upon leaves and wild fruits, they consume much time in trailing their bodies to the foot of a tree, and still more in climbing to the branches* ; and,

* It is alleged by the natives, that this animal lives solely on the leaves of a certain tree, called in their language *amahut*. This tree is higher than any other in that country. Its leaves are very small and delicate ; and, because the sloth is commonly found in these trees, they have given it the name of *haut*. — *Singul. de la France Antarc. par Thetvet*, p. 100. The sloth lives solely on the leaves of trees, and the highest branches serve him for a retreat ; but it costs him two days' journey to arrive at them. . . . Neither caresses, threatenings, nor even blows, can make him move quicker. — *Hist. des Indes, par Maffé*, p. 71. — *Herrera*, p. 252. The sloth is not so large, nor so rough as the *tamanoir*, or great anteater. . . . He feeds upon leaves. . . . These animals do much mischief to trees ; after eating all the leaves of one tree, they employ five or six days in descending it and climbing another, however nearly situated ; and, though plump and fat when they begin their journey, they are reduced to skin and bone before it is finished. They never abandon a tree till they have made it as bare as it can be in the middle of winter. — *Dampier's Voyage*. They climb trees, but so slowly, that they are easily taken. When seized, they make no resistance, and never attempt to fly. If a long pole is presented to the sloth, he begins to mount it ; but the slowness of his motion is tiresome : when he arrives at the top he remains

during this slow and melancholy exercise, which sometimes lasts several days, they are obliged to suffer the most pressing hunger. When arrived upon a tree, they never descend. They cling to the branches, and devour successively the leaves of every twig. They pass several weeks in this situation, without receiving any drink. When they have rendered the tree entirely naked, they still remain ; because they cannot descend. In fine, when the pressure of hunger becomes superior to the dread of danger or death, being unable to descend, they allow themselves to tumble down like an inanimated mass ; for their stiff and inactive limbs have not time to extend themselves in order to break the fall.

When on the ground, they are at the mercy of all their enemies. As their flesh is not absolutely bad, both men and rapacious animals go in quest of these animals. It appears that they do not multiply fast, or, at least, if they produce frequently, it must be in small numbers at a time ; for they have only two paps. Every circumstance, therefore, concurs to destroy them ; and it is extremely difficult for the species to sup-

there, without taking the trouble of descending. — *Voyage de Cayenne, par Binet*, p. 341. The sloths have four legs, which they employ only in climbing : when perched upon a tree, they never quit it till they have eat the whole leaves.* They then descend, and mount another, the leaves of which they devour in the same manner. We plac'd this animal on the lowest sail of the fore-mast. It spent two hours in climbing to the scuttle, which a monkey would have accomplished in half a minute. One would imagine that it moves by a spring ; like the pendulum of a clock. — *Travels by Woods Rogers*.

port itself. But, though slow, awkward, and almost incapable of motion, they are obstinate, strong, and tenacious of life. They can live very long without victuals of any kind *. They are covered with thick, dry hair; and, being incapable of exercise, they lose little by perspiration; and, though their food be meager, they fatten by repose. Though they have no horns nor hoofs, nor cutting teeth in the under jaw, yet they belong to the ruminating tribes, and have several stomachs. Hence the quality of their food may be compensated by the quantity they take at a time. What is still more singular, instead of very long intestines, like other ruminating animals, their guts are very short and small, like those of the carnivorous kind. This contrast exhibits the ambiguity of Nature. The sloths are unquestionably ruminating animals: they have four stomachs; and yet they want every other character, both internal and external, which generally belongs to animals of this class. There is still another singularity in the conformation of the sloths: instead of three distinct apertures for the discharge of urine and excrements, and for the purposes of generation, these animals have but one, which terminates in a common canal, as in birds.

Moreover, if the misery resulting from a defect of sentiment be not the worst of all, the pain endured by the sloths, though very apparent,

* I had a present of a living *haut*, which I kept twenty-six days, during which he neither ate nor drank. — *Singular. de la France Ant. par Thevet*, p. 99.

seems not to be real ; for their sensations appear to be blunt. Their calamitous air, their dull aspect, and their reception of blows without emotion, announce their extreme insensibility. This bluntness of sensation is farther demonstrated by their not dying instantly when their hearts and bowels are entirely cut out. Piso, who made this cruel experiment *, tells us, that the heart, after being separated from the body, beat in a lively manner for half an hour ; and that the animal continued to contract its legs slowly, as commonly happens during sleep. From these facts, this quadruped seems to approach not only the turtle, but the other reptiles which have no distinct centre of sensation. All these beings may be said to be miserable, but not unhappy : Nature, even in her most neglected productions, always appears more in the character of a parent than of a stepmother.

These two animals are peculiar to the southern

* *Secui fœmellam vivam habentem in se fœtum omnibus modis perfectum cum pilis, unguibus, et dentibus, amnioni more cæterorum animalium inclusum. Cor motui suum validissime retinebat postquam exemptum erat e corpore per semihoram; placenta uterina constabat multis particulis carneis instar substantiæ renum, rubicundis magnitudinis variorum, instar fabarum; in illas autem particulas carneas (tenuibus membranulis connexas) per multos ramulos vasa umbilicalia instar funis contorta, inserta erant. Cor fœmellæ duas habebat insignes aurículas cavas. Exempto corde cæterisque visceribus, multo post se movebat, et pedes lente contrahebat sicut dormituriens solet. Mammillas duas cum totidem papillis in pectore fœmella et fœtus gerebant.—Pison, *Hist. Bras.* p. 322.*

regions of the New Continent, and are no where to be found in the Old. We formerly remarked, that the editor of Seba's cabinet was deceived when he called the two-toed sloth, or unau, the *sloth of Ceylon*. This error, which has been adopted by Klein, Linnæus, and Brisson, is now more evident than it was formerly. The marquis de Montmirail has a live unau, which was transmitted to him from Surinam: those we have in the royal cabinet were brought from the same place and from Guiana; and I am persuaded that both species exist through the whole deserts of America, from Brasil* to Mexico. But, as they have never frequented the northern regions, they could not pass from the one continent to the other. If these animals have sometimes been seen in the East Indies, or on the coast of Africa, it is certain that they must have been transported thither. They cannot endure cold; and they likewise dread rain. The alternation of moisture and dryness changes their fur, which has more the appearance of ill dressed hemp than of wool or hair.

I shall finish this article with some observations communicated to me by the marquis de Montmirail, concerning an unau, or two-toed sloth, which he fed three years in his menagery: "The hair of the unau is much softer than that of the ai. . . . All that has been said by

* The ai, or three-toed sloth, described and engraven by Edwards, came from the Bay of Honduras; and Ulloa says, that it is found in the environs of Porto-bello.

travellers concerning the excessive slowness of the sloths should, probably, be applied only to the *aï*, or three-toed species. The *unau*, though very heavy, and of an extremely awkward gait, mounted and descended the highest tree several times in a day. It was in the evening and during the night that he was most active, which made me suspect that he saw very ill in the day, and that his eyes were of no use to him but in the dark. I purchased this animal at Amsterdam. It was fed with sea-biscuit; and I was told, that, during the verdure of the trees, it would require nothing but leaves. We gave him leaves, which he ate freely, when they were tender; but, as soon as they began to dry, or were pierced by caterpillars, he refused them. During the three years that I kept him alive in my menagery, his ordinary food was bread, apples, and roots; and his drink was milk. He always laid hold, though with difficulty, of what he wanted to eat, with his fore paws; and the difficulty increased in proportion to the largeness of the morsel. He seldom cried; his cry is short, and he never repeats it twice, without a considerable interval. This cry, though plaintive, has no resemblance to that of the *aï*, if it be true that *aï* is the sound of that animal's voice. The most natural situation of the *unau*, and which he prefers to all others, is hanging on a branch, with his body turned downward. He sometimes sleeps in this position, his fore paws being fixed to the same point, and his body forming an arch. The

strength of his muscles is incredible ; but it becomes useless to him when he walks ; for his motion is constrained and wavering. This structure alone seems to be the cause of the animal's slowness, which, besides, has no violent appetites, and does not recognise those who take care of him."

. M. de la Borde remarks, that there are two species of these animals in Cayenne, the one called the *bashful sloth*, and the other the *sheep-sloth*. The latter is twice as long as the former, and of the same thickness. He has long, bushy, whitish hair, and weighs about twenty-five pounds. He throws himself down upon men from the tops of trees, but in a manner so sluggish, that it is easy to avoid him. He feeds during the day as well as the night.

"The bashful sloth," M. de la Borde remarks, "has black spots on his body, weighs twelve pounds, keeps always on trees, and eats the leaves of the Surinam fig-tree, which are said to be poisonous. The bowels of this sloth poison dogs, and yet the flesh is good to eat ; but its use is confined to the common people.

"Both species produce only a single young, which they always carry on their back. It is probable, though I am not certain, that the females bring forth on trees. They feed on the leaves of the Brazilian plumb-tree*, and of the Surinam fig. The two species are equally com-

* *Spondias lutea* of Linnæus.

mon; but they are not frequent in the environs of Cayenne. They sometimes suspend themselves by their claws on branches of trees which hang over the rivers; and, when in this situation, it is easy to cut the branch and make them fall into the water; for they never quit their hold.

“When ascending a tree, this animal carelessly stretches out one of its fore-pats, and fixes its long claw as high as it can reach. It then heavily raises its body, gradually fixes the other pat, and, in this manner, continues to climb. All these movements are incredibly slow and languid. When kept in houses, they always climb upon some post or door, and never choose to rest on the ground. If a stick be held out to them when on the ground, they lay hold of it, and mount to its top, where they firmly adhere with their fore paws, and embrace the stick with their whole body. They have a weak plaintive cry, which is heard at no great distance.”

From this passage, it is obvious, that the sheep-sloth is the same with what we have called *unau*, or the three-toed sloth; and that the bashful-sloth is the *ai*, or two-toed species.

M. Vosmaër, an able naturalist, and superintendant of the prince of Orange's cabinet, has criticised two assertions in my history of these animals. He remarks, “that we ought to reject the relation of M. de Buffon, when he tells us, that the sloths are unable to descend from

a tree, but allow themselves to fall down like blocks *."

I advanced this fact on the authority of eye-witnesses, who assured me, that they had sometimes seen the animal fall down at their feet. The fact is farther supported by the testimony of M. de la Borde. What I have said on this subject, therefore, ought by no means to be rejected.

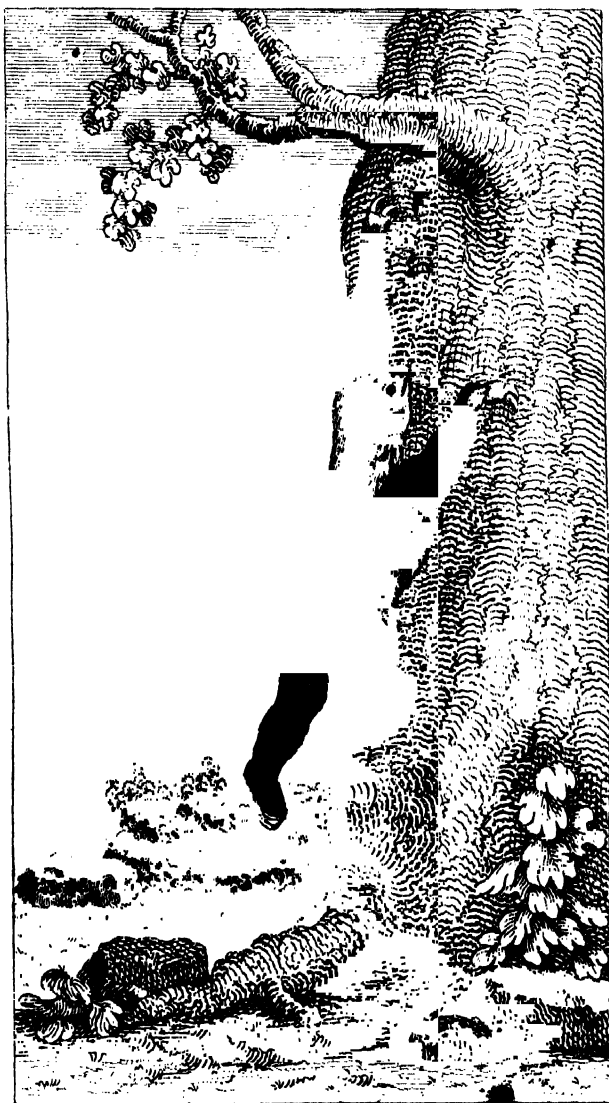
The second assertion is not equally well founded. I willingly acknowledge my mistake, when I said that the sloths had no teeth, and I thank M. Vosmaër for correcting this error †.

* Descript. d'un Paresseux Pentedactile de Bengale, p. 5.

† The following are some curious observations by Dr. Shaw on the distribution of the arteries in the sloth :

"In Mr. Carlisle's description of the remarkable disposition of the trunks of the subclavian and iliac arteries in the lemur tardigradus, he very properly observed, that 'it would be of some importance in physiology to ascertain whether the other slow-moving quadrupeds have any peculiar arrangement of the arteries of their limbs,' the single fact above recorded being hardly sufficient for the foundation of any theoretical explanation of the slow movement of the muscles. The British Museum afforded an opportunity of investigating this particular in other slow-moving quadrupeds, and Mr. Carlisle, at my request, examined the arteries of the bradypus tridactylus, of all quadrupeds yet known the slowest in its movements; when the same remarkable distribution of vessels presented itself, both in the upper and lower limbs; and the small divisions of the artery, forming the surrounding cylinder, were still more numerous than in the slow lemur; viz. not less than sixty or sixty-five, and in the lower limbs, at least as many: these small cylinders were also connected by several lateral or anastomosing branches. We then opened a specimen of the bradypus didactylus, an animal far less slow in

its motions than the tridactylus. In this species, a distribution indistinctly approaching to that above described was discovered, but with much fewer divisions, and more approaching to the usual distribution in other quadrupeds. Lastly, a lemur loris, or slender-limbed lemur, was examined; when it appeared, that the trunk of the artery, both in the upper and lower limbs, was surrounded by only four or five smaller cylinders, instead of the numerous ones so remarkable in the slow lemur, &c." — *Shaw's Gen. Zool.* i. p. 157.



KOURI.

THE KOURI, OR LITTLE TWO-TOED SLOTH.

WE here give the figure of an animal of a species allied to the two-toed sloth : it is, in truth, half as small again, but it greatly resembles the sloth in shape. This animal was found in a house in French Guiana; it was in the yard among the fowls, and ate with them : it is said to be the only individual of the species that has been seen at Cayenne, from whence it was sent us for the king's cabinet, under the name of *kouri*; but we have received no account of its natural habits, and are obliged to confine ourselves to a simple description.

This little sloth resembles the great one in an essential character; it has, like him, only two toes on the fore-feet, instead of which the *aï* has three, and consequently it is of a different species from the *aï* : it is only twelve inches long, from the end of the nose to the origin of the tail, whilst the two-toed sloth, which we have described, is seventeen inches six lines; however, this little sloth appears to be full grown. Like the great one, it has two toes before and five (three) behind; it not only differs in size, but also in its hair, which is of a dark brown shaded

with grayish, and tawny; and this hair is much shorter and of a duller colour than in the great two-toed sloth: under the belly it is of a clear cinereous brown, and this colour brightens still more under the neck to the shoulders, where it forms a pale tawny band: the longest nails of this little sloth are not more than nine lines, while those of the great one are seventeen and a half.

We have had the great two-toed sloth alive, but as we have only described the little one from a stuffed skin, we cannot speak on all the differences which might be found between these two animals; we nevertheless presume that they form but one and the same species, in which exist two kinds, the one large, and the other small.



SURICATE.

THE SURIKATE, OR FOUR-TOED WEESEL*.

THIS animal was purchased in Holland, under the name of *surikate*. It is a native of Su-

CHARACTER SPECIFICUS.

VIVERRA TETRADACTYLA. V. pedibus tetradactylis, naso producto mobili.—*Linn. Syst. Nat. Gmel.* i. p. 85.—*Schreb.* iii. pl. 117.

VIVERRA SURIKATTA. V. grisea, naso producto mobili, pedibus tetradactylis, canda ferruginea, apice nigro.—*Shaw's Gen. Zool.* i. p. 384.

Viverra (Surikatta) pedibus tetradactylis.—*Erxleb. Mamm.* p. 488.

VIVERRA TETRADACTYLA.—*Miller. Cimel. Phys.* t. 20.

LE SURICATÉ.—*Buff. Hist. Nat. par Sonn.* xxxi. p. 294, pl. 31.

FOUR-TOED WEESEL.—*Penn. Hist. Quadr.* p. 57.

SURIKATE.—*Shaw's Gen. Zool.* i. p. 384, pl. 93.

HABITAT

in Africa Australi.

W.

* The four-toed weasel, with the upper jaw much longer than the lower, and very moveable and pliant. The ears are rounded; the hair pretty long, hard, and upright, varied with black and white; the points black. It has only four toes on each foot, which is an exception to the weasel kind. The tail is taper. The length of the animal, from nose to tail, is about one foot, and that of the tail six inches.—*Pennant's Synops. Quadr.* p. 228.

rinam, and other provinces of South America *. We fed it for some time; and afterwards M. de Sève, who has drawn, with equal skill and attention, the animals published in this work, having kept it alive during several months, communicated to me the remarks he had made with regard to its natural habits and dispositions. It is a handsome, active, and dexterous animal, sometimes walking on end, and frequently sitting upright, with the fore-feet hanging down, the head erect, and moving on the neck as upon a pivot. It always assumed this attitude when it came near the fire to warm itself. It is not so large as a rabbit, and pretty much resembles the ichneumon, both in size and hair, only it is rougher, and the tail is not so long. But, by the prominence of the upper part of the muzzle, it makes a nearer approach to the coati, or Brazilian weasel, than to any other animal. The surikate has also a character which is peculiar to it and the hyæna; for they are the only animals which have four toes on all their feet.

At first, we fed this surikate with milk, because it was very young: but its taste for flesh soon appeared. It eat raw meat, and par-

* Mr. Pennant remarks, that M. de Buffon is the only person who has described this animal, but that he seems to have been deceived with regard to the place of its nativity. Instead of South America, Mr. Pennant says, that it inhabits the Cape of Good Hope and the island of Java, and refers, for his authorities, to *Pallas, Miscell. Zool.* p. 59, 60; and *Rumph. Herb. Amboin.* app. p. 71. The latter, when speaking of the ichneumon, or muncos, says, “ac distinguendus est a suracatje seu *Javanorum* zupe, quod est mustela.”

ticularly the flesh of chickens, with great avidity. It likewise endeavoured to seize young animals. A young rabbit, which lived in the same house, would have fallen a prey, if it had not been prevented from making the attack. It was fond of fish, and still fonder of eggs. I have seen it carry off, with its two paws, eggs which had been put into the water to be boiled. It refused fruits, and even bread, unless it was mashed. Like the squirrel, it employed its fore paws to convey its victuals to its mouth. In drinking, it lapped like a dog, and never drank water but when it was warm. Its ordinary drink was its own urine, though it had a very strong odour. It frolicked with the cats, and always innocently. It did no harm to the children, and never bit any person but the master of the house, to whom it had taken an aversion. It never gnawed with its teeth, but often injured the plaster and furniture by scratching with its claws. It was so well tamed, that it knew its own name. It went about through the whole house, and returned whenever it was called. It uttered two kinds of sounds. When it was tired by being alone, or heard any unusual noise, it barked like a young dog; and, when it was caressed, or felt any pleasant emotion, it made a noise as brisk and striking as a small rattle rapidly turned round. This animal was a female, and appeared to be frequently in season, notwithstanding the coldness of the climate, which, though every thing was done to

THE SURIKATE,

cherish and keep her warm, she could support during one winter only.

We have remarked above, that the surikate did no injury to children; and that it never bit any person but adults, and, among others, the master of the family, against whom it had taken an aversion. I since heard that it never attacked either the mother or the children of his family, but that it bit a number of other persons of both sexes. M. de Sève remarked, that it was induced to bite by some particular odour. When laid hold of, the cartilage at the end of its nose, curled up while it smelled, and according to the odour received, it either bit or did not bite. This experiment was tried upon a number of people; and, it is singular, whenever it bit one person, it always continued to bite him. Some people were so disagreeable to it, that it endeavoured to make its escape in order to bite them; and, when it could not lay hold of the legs, it darted upon their shoes or petticoats. It even used several artifices to come near those whom it wished to bite.

M. Vosmaër, in his description of a flying squirrel, makes the following pertinent remarks:

“M. de Buffon,” says M. Vosmaër, “has probably been deceived both with regard to the name and the native country of the surikate, which was last summer transmitted by M. Tulbagh to the prince of Orange. It belongs not to America, but to Africa. This small animal, a male and a female of which were directed to

me, but the female died in the passage, was unknown to Kolbe, or at least is not mentioned by him, and appears to be found far up the country only: this inference may be drawn from the governor's letter, which I received at the same time, and where he makes the following remark: *I send by the captain two small animals, a male and a female, to which I can neither give a name nor refer them to any other species; because they were, for the first time, brought from the remote deserts and stony mountains of this vast country. They are very mild and gentle. They feed upon fresh meat, either boiled or raw, eggs, and ants. I hope they will arrive in life; for, I imagine, they were never hitherto seen in Europe.*"

The evidence of M. Tulbagh is positive, and M. de Vosmaër's remark is just; for, though I had this animal alive for a long time, I received its name and country from no better authority than an animal merchant, who told me he had purchased it in Holland under the name of *surikate*, and that it came from Surinam. We are now certain that it is neither found in Surinam nor in the other provinces of South America, but in the mountains of Africa above the Cape of Good Hope; and, as to the name, it is of little moment: it can be changed when we receive better information.

THE TARSIER, OR WOOLLY JERBOA*.

WE accidentally procured this animal from a person who could neither tell its name, nor from whence it came. It is remarkable for the excessive length of its hind-legs. The bones of the feet, and particularly those which compose the upper part of the *tarsus*, are prodigiously long; and it is from this distinctive character that we have derived the name of the animal. The tar-

* CHARACTER SPECIFICUS †.

LEMUR TARSIER. *L. caudatus cinereus*, cauda gracili subnuda apice subfloccosa, pedibus posterioribus longissimis. — *Shaw's Gen. Zool.* i. p. 105.

Lemur (Tarsier) cauda gracili nuda apice subfloccosa, tibiis posticis nudis. — *Erxleb. Mamm.* p. 71.

DIDELPHIS MACROTARSUS. *D. cauda gracili nuda apice subfloccosa*, plantarum talis elongatis nudis ungue pollicari plano. — *Linn. Syst. Nat. Gmel.* i. p. 109. — *Schreb.* iii. pl. 155.

LE TARSIER. — *Buff. Hist. Nat. par Sonn.* xxxii. p. 160, pl. 12.

TARSIER MAUCAUCO. — *Penn. Hist. Quadr.* i. p. 231.

TARSIER. — *Shaw's Gen. Zool.* i. p. 105, pl. 35.

HABITAT

in Amboina.

W.

† For the generic character, see *Loris*.



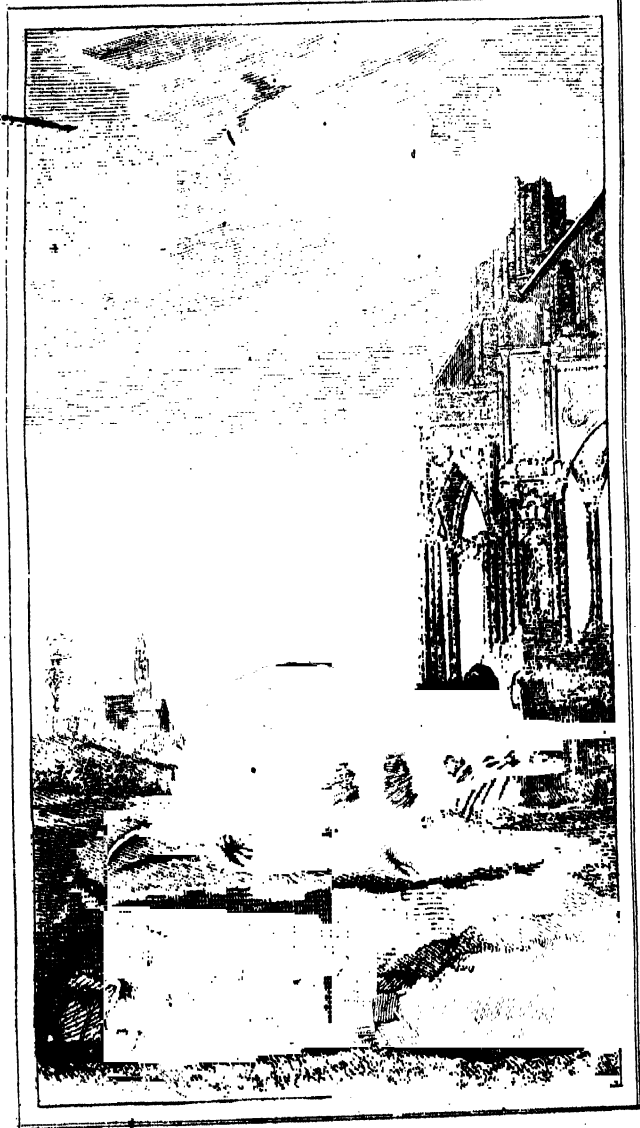
TARSIER.

sier, however, is not the only quadruped whose hind-legs are constructed in this manner. The tarsus of the Egyptian jerboa is still longer. Hence the appellation of *tarsier* is only precarious, and ought to be changed as soon as we learn the name which the animal receives in the country where it is produced. The jerboa is found in Egypt, Barbary, and the East Indies. I at first imagined that the tarsier might belong to the same countries, on account of its resemblance to the jerboa. Both these animals are of the size of a middling rat. The hind-legs of both are excessively long, and those before very short. In both, the tail is of a prodigious length, and garnished towards the extremity with long hairs. Both have very large eyes, and erect, large, open ears. In both, the inferior part of the hind-legs is naked, while the rest of the body is covered with hair. As these animals possess, in common, such peculiar characters, it might be presumed that they were neighbouring species, or, at least, species produced by the same climate and country. From a comparison of their other parts, however, this is rendered extremely doubtful. The tarsier has five toes on all his feet, and may be said to have four hands; for his five toes are very long, and well separated. The thumbs of the hind-feet terminate in a flat nail; and, though the nails of the other toes be pointed, they are so short and small, that the animal can use its fore-feet in the same manner as hands. The jerboa, on the contrary, has only four toes, and four long crooked claws on the

fore-feet; and, instead of a thumb, it has only a tubercle without any nail. But, what removes these animals to a greater distance, the jerboa has but three toes, or three large claws on the hind-feet. This distinction is too great for animals nearly allied in species; and it is not impossible that they belong to very distant climates; for the tarsier, by his small size, his four hands, long toes, and small claws, and his long tail and feet, seems to make a near approach to the Murine, Mexican, and Surinam opossums. But we here throw out our doubts only; and shall be highly obliged to any person who can ascertain or remove them, by pointing out the real country and name of this animal*.

* *Maucauco* with a pointed visage; slender nose, bilobed at the end; eyes large and prominent; ears erect, broad, naked, semitransparent, an inch and a half long; between them, on the top of the head, is a tuft of long hairs; on each side of the nose, and on the upper eyebrow, are long hairs. In each jaw are two cutting, and two canine teeth, which form an exception in this genus. Four long toes and a distinct thumb on each foot; the lower part of each tuberculous; the claws sharp pointed, but (except on the two inner toes of the hind-feet) are attached to the skin: the thumbs of the hind-feet are broad, and greatly dilated at their ends: hairs on the legs and feet short, white, and thin: tail almost naked, the greater part round and scaly, like that of a rat; but grows hairy towards the end, which is tufted. Hair soft, but not curled; of an ash colour mixed with tawny.

Length, from nose to tail, near six inches; to the hind toes eleven and a half, the hind-legs, like those of the jerboa, being of a great length; the tail nine inches and a half long. Described from two fine specimens in the cabinet of Dr. Hunter. — *Penn. Hist. Quadr.* i. p. 231, 3d edit. *W.*



HAMSTER.

THE HAMSTER, OR GERMAN MARMOT

THE hamster is the most famous, as well as the most destructive of all rats. We omitted its history, when treating of the other rats, be-

* CHARACTER SPECIFICUS.

MUS CRICETUS. M. buccis sacculiferis, corpore subtus aterrimo, cicatricibus lumbaribus detonsis. — *Linn. Syst. Nat. Gmel.* i. p. 137. — *Pall. Glir.* p. 83. — *Schreb.* iv. pl. 198. A.

Mus cauda mediocri, auriculis rotundatis, corpore subtus nigro, lateribus rufescentibus; maculis tribus albis. — *Linn. Syst. Nat.* xii. 1, p. 82.

Glis (cricetus) corpore subtus nigro, lateribus rufescentibus maculis utrinque tribus albis. — *Erzleb. Mamm.* p. 363.

Glis (Marmota Argentoratensis) ex cinereo rufus in dorso, in ventre niger, maculis tribus ad latera albis. — *Briss. Quadr.* p. 166.

CRICETUS. — *Gesm. Quadr.* p. 738. — *Ray's Quadr.* p. 221.

LE HAMSTER, — *Buff. Hist. Nat. par Sonn.* xxxii. p. 168, pl. 13.

HAMSTER RAT. — *Penn. Hist. Quadr.* ii. p. 206, pl. 84. — *Shaw's Gen. Zool.* ii. p. 95, pl. 137.

HABITAT

in Germania, Polonia, Ukrania, in locis arenosis.

The hamster is very common in the southern countries of Russia, principally in the most fertile and best cultivated lands. It is, however, by no means rare in the deserts of Tar-

cause at that time we had not an opportunity of seeing and examining the animal. For the knowledge we have now acquired of it, we are obliged to the marquis de Montmirail and M. de Vaitz, who sent us two live hamsters, accompanied with an instructive memoir* con-

tary and the southern parts of Siberia to the Jenissey, but never beyond that river. In the desert, they live a wandering life, preferring those spots which abound with liquorice, the seeds of that plant serving them for food. The Russian horse-dealers are said to dry and powder the flesh of the hamster, and give it, mixed with oats, to their horses, which soon makes them fat, but injures their health.

Pallas remarked a black variety of hamster in Russia. It is more frequently met with about Simbirsk than the common kind. The black hamsters often couple with the others, and it is not uncommon to find some all black, and others of mixed colours in the same brood. They disappear a little farther to the south, near Samara, and it is difficult to assign a reason for this, since it cannot be attributed to climate in so short a distance. The hamsters of this black variety have, in general, the mouth, nose, edge of the ears, the bottom of the feet, and often also the end of the tail, of a white colour.

W.

Marmot with large rounded ears, and full black eyes. The colour of the head and back is a reddish brown, and that of the cheeks white. Beneath each ear there is a white spot, another on each shoulder, and a third near the hind-legs. The breast, upper part of the fore-legs, and the belly, are black. The tail is short and almost naked. It has four toes and a fifth claw on the fore-feet, and five toes behind. The length of the body is about nine inches, and that of the tail three. — *Pennant's Synops of Quad.* p. 271.

* I refer you to a pretty full memoir concerning the hamster which I received from M. de Waitz, minister of state to the Landgrave of Hesse-Cassel, who, to his brilliant talents for state affairs, joins an ardent desire for the improvement of na-

cerning their manners and dispositions. We fed one of these animals during several months, in order to examine it attentively, and afterwards dissected it, with a view to compare its internal structure with that of other rats. In its anterior parts, it has a greater resemblance to the water rat than to any other animal. 'It resembles him still more in the smallness of its eyes and the fineness of its skin. But the tail, instead of being long, is shorter than that of the compagnol, or short-tailed mouse, which, as formerly remarked, has a great similarity to the water rat in its internal conformation. The hamster seems to be, with regard to the short-tailed field-mouse, what the surmulot, or Norway rat, is to the long-tailed field-mouse. All these animals live under ground, and appear to be animated with the same instinct. They have nearly the same manners, and particularly that of collecting magazines of grain in their holes. We shall not, therefore, enlarge so much on the resemblances in figure and dispositions, as upon the differences which distinguish the hamster from all the other rats of which we have formerly treated.

Agricola* is the first writer from whom any

tural history. . . . He, at the same time, transmitted to me two of these animals alive, which I shall send you by the first opportunity.—*Lettre de M. le Marquis de Montmirail à M. de Buffon, 31 Juillet, 1762.*

* Hamster, quem quidam cricetum nominant, existit iracundus et mordax, adeo ut si eum eques incaute persequatur, soleat prosilire et os equi appetere, et si prehenderit mordicus tenere. In terræ cavernis habitat. . . . , pedes habet admo-

genuine information can be derived concerning the hamster; to which Fabricius * added a few

dum breves; pilis in dorso color est fere leporis: in ventre niger, in lateribus rutilus, sed utrumque latus maculis albis tribus numero distinguitur. Suprema capitis pars ut etiam cervix eundem quem dorsum habet colorem. Tempora rutila sunt; guttur est candidum. . . . pili autem sic inhaerent cuti ut ex ea difficilem exelli possint. . . . atque ob hanc causam et varietatem pelles ejus sunt pretiosae: multa frumenti grana in specum congerit, et utrinque dentibus mandit. . . . Ager Turingiae eorum animalium plenus ob copiam et bonitatem frumenti; *Georg. Agricola*, de animantibus subterraneis. — *Apud. Gesn. Hist. Quad.* p. 738.

* Hamster animal est agreste sub terra habitans. . . . colore vario, ventre non candido sed potius nigerrimo. . . . Dentes habet in anterioris oris ima supremaque parte binos, prominentes et acutos, malas laxas et amplas, ambas exportando importandoque replet: ambabus mandit. . . . Cum terram estodit, primum anterioribus pedibus (quos talpæ similes habet brevitate sed minus latos) eam retrahit, longius progressus, ore exportat. Cuniculos ad antrum plures agit cubiti profunditate, sed admodum angustos. . . . Antrum intus extendit ad capienda frumenta. . . . Messis tempore grana omnis generis frumenti importat. . . . Terra ante cuniculos erecta non tumuli modo assurgit, ut talparum tumuli, sed ut agger dilatatur. . . . Vescitur hoc animal frumento omnis generis, et si domi alatur pane ac carnibus. In agro etiam mures venatur. Cibum cum capit in pedes priores erigitur. . . . Quamvis autem corpore exiguum sit, natura tamen est pugnax et temerarium. Laccessitum quidquid ore gestat pulsatis utroque pedē malis subito egerit, recta hostem invadens, spiritu oris et assultu protervum ac minax. . . . Nec terretur facile, etiam si viribus impar ei sit quem petit. . . . Vidi ipse, cum equum assultando naribus corripuisset non prius morsum dimisisse quam ferro occideretur. . . . Hamestri pellis maxime durabilis. . . . In Turingia et Misnia hoc animal frequens, non omnibus tamen in locis, sed in uberrimis et fertilissimis. In Lusacia circa Radeburgum, e satis panici efflo-

facts. But Schwenckfeld * has done more than all the other authors put together. He dissected the hamster, and gave a description of

ditur; Mulbergi ad Albim in vinetis reperitur, nam maturis quoque uvis vescitur. — *Georg. Fabricius, apud Gesn. Hist. Quadr. p. 739 et 740.*

* *Porcellus frumentarius*, hamster minor paulo cuniculo. Longitudo dodrantalis et palmi unius. Pilis in dorso fere leporis est colore. Gula, venter, et pedes interiores nigra sunt. Rubet in lateribus et circa caudam, quæ coloris murini tres digitos longa. Maculæ albæ sub auribus, juxta rostrum, supra arcos et coxam. Pedes admodum breves, digitis et unguculis albidis quinque utrinque. In pedum planta, seu parte digitorum inferiore, tubercula veluti calli ubique eminent. Oculi splendidi, nigri, elegantes. Dentes habet ut lepus anteriores binos incisores et laterales. Lingua mollis spongiosa. E bucculis vesiculæ utrinque amplæ membranæ sub cute porriguntur, quæ sensim gracilescentes dorso tenui ligamento alligantur. Has instar sacci messis tempore granis tritici, siliginis, et aliis seu folles quospiam infarcit, atque in suos cuniculos comectum in futuram hyemem congerit ac reponit.

Pulmonibus candidis quatuor sunt lobii.

Cor renibus paulo majus mucrone obtusiore. Hepar triplicatum apparet, unum super alterum impositum. Inferior pars dorso adjacens duos obtinet lobulos. Media, quæ maxima, integra absque incisuris integrum abdomen secundum latitudinem occupans ventriculum ex parte amplexatur. Superior portio divisa aliis incumbens diaphragmati proxime subjacet. Fel nullum conspiciere licuit.

Ventriculus ei duplex. Unus candidus rotundiusculus, cui alter per isthmum annectitur longiusculus, sinistrum hypochondrium occupans, hinc prope isthmum œsophagus inseritur, alteri sub dextro hypochondrio intestina adhærent. In utroque reperiebatur chylus candidus, pulticulæ farinacæ similis, crassior tamen in sinistro.

Intestina gracilia flavent; ubi desinunt, incipit cæcum anfractuosum amplum, hinc crassiora ad cæruleum vergunt colo-

it, which corresponds almost in every article with ours; yet he is hardly quoted by our more modern naturalists, who content themselves with copying Gesner. In justice to this author, we have inserted his remarks entire; and when to these we add the observations of M. de Waitz, the history of this animal will be complete.

“ The habitations of the hamster are differently constructed, according to their sex, age, and the quality of the ground. The house of the male has an oblique passage, at the mouth of which there is a considerable heap of earth. At a distance from this oblique passage, there is a hole which descends perpendicularly into the chambers of the lodging. No earth appears near this hole; which renders it probable that the oblique passage is dug from without, and that the perpendicular hole is begun from below, and continued upward.

“ The house of the female has likewise an

rem. Excernit pilulas longiusculas instar murium. Lien coloris sanguinei soleam fere humanam repræsentat.

Renes bini phaseoli magnitudine et figura. Vesicula candida pisum Italicum æquat, rotunda lagenulæ instar.

Parit quinque sexve, uno partu.

In tetræ cavernis habitat, agri vastator et Cereris hostis. Autumno multa frumenti grana in specum congerit, et utrinque dentibus mandit.

Admodum pinguescit; ob id porcellis Indicis non inepte comparatur.

In cibum non recipitur; sed pelles consuuntur ad vestimenta.

De caverna sua aqua fervente seu frigida copiose infusa expellitur.

oblique passage, and, at the same time, two, three, and not unfrequently, eight perpendicular holes, in order to allow her young to go out and in at pleasure. The male and female have each a different dwelling, and the female makes her's deeper than the male.

“ At the distance of a foot or two on each side of the perpendicular holes, the hamsters of both sexes, according to their age, and their number of young, dig one, two, three, and sometimes four cavities in the form of vaults, both above and below, which are more or less capacious in proportion to the quantity of their provisions.

“ The perpendicular hole is the common passage: the oblique one is made for the purpose of carrying out the earth. As the declivity of this oblique passage is more gentle in one cavity than in another, it may likewise promote a circulation of air in those subterraneous habitations. In the cavern where the female brings forth her young, there is no magazine of grain, but a nest of straw and herbs. The depth of the caverns is various: a young hamster, in the first year, makes his cavern not above a foot deep; but the old ones frequently dig to the depth of four or five feet. The whole habitation, including the passages and caverns, is sometimes from eight to ten feet in diameter.

“ These animals provide their magazines with dry clean grain, corn in the ear, peas, and beans, in their pods, and afterwards carry out the husks and pods by the oblique passages.

In transporting their provision, they use the pouches in their cheeks, each of which will hold a quarter of an English pint.

“ The hamster begins to lay up provisions about the end of August. When his magazines are filled, he covers them, and carefully shuts up all the avenues with earth, which prevents his retreat from being easily discovered, and it is only to be recognised by the heap of earth near the oblique passage mentioned above; after which, the perpendicular holes must be investigated. The most common method of seizing these animals is to dig them out, which is a laborious task, on account of the extent and depth of their holes. A person, however, who accustoms himself to this species of hunting, fails not to profit by it; for, in autumn, which is the proper season, he generally finds in each habitation, beside the fur of the animal, two bushels of good grain. The hamsters produce twice or thrice in a year, and bring forth five or six, and often more, at each litter. In some years they appear in prodigious numbers, and, in others, hardly any of them are to be seen. It is in moist years that they multiply so greatly; and this numerous multiplication occasions a dearth, by the general devastation they make among the corn.

“ At the age of six weeks or two months, the hamsters begin to dig their habitations; but they neither couple nor produce during the first year.

“ The polecats destroy great numbers of

the hamsters, and take possession of their holes.

“ The hamsters are commonly brown on the back, and white on the belly. Some of them, however, are gray; and this difference may be the effect of advanced age. Some of them are also totally black.”

Like the mullet, or long-tailed field-mouse, the hamsters mutually destroy each other. Of two kept in a cage, the female killed the male in one night, and, after cutting the muscles which fix the jaws to each other, devoured a part of the intestines. They produce several times in the year, and are so destructive, that, in the states of Germany, a price is set upon their heads. They are so numerous in that part of the continent, that their fur is a considerable article of commerce.

All these facts, which we have extracted from the memoir of M. Waitz, and the remarks of M. de Montmirail, appear to be certain, and correspond with our other sources of information concerning the hamsters. But it is not equally certain, as mentioned in the same memoir, that they remain in a torpid state during the winter, and revive in the spring. The hamster which we kept last winter (1762, 3) in an apartment without fire, and where the cold frequently congealed water, never became torpid, but moved about and eat its ordinary food. But several kinds of dormice, which were likewise in our possession, became torpid in a much

smaller degree of cold. Hence the hamster neither approaches the dormice nor marmot by this character; and some of our naturalists have improperly called it the *marmot of Strasburg*, though it sleeps not like the marmot, nor is found in the neighbourhood of Strasburg.

In the *Gazette de Littérature*, of the 13th of September, 1774, we find the following observations concerning the hamster, extracted from a German publication by M. Sulzer.

“The corn-rat, in German, *hamster*, cannot be more commodiously described than at Gotha, where, in one year, 11,574 skins of it, in another, 54,429, and, in a third, 80,139, have been brought to the town-house. In general, this animal inhabits temperate countries. When irritated, its heart beats 180 times in a minute. The weight of the body is to that of the brain as 1 to 193.

“These animals lay up magazines, which often consist of twelve pounds of grain. In winter, the female sinks very deep in the earth. The male is a bold animal, and defends himself against dogs, cats, and men. He is naturally quarrelsome, agrees not with his own species, and sometimes, in a transport of fury, slays his own family. He devours the feeble individuals of his species, as well as mice and birds; and yet he feeds upon all kinds of herbs, fruits, and seeds. He drinks little; and the female remains longer in her winter retreat than the male. The former goes four weeks

with young, and often produces six at a litter. In a few months, the females become fertile. The rat called *illtis* * kills the hamster.

“ When this animal is in a torpid state, neither respiration, nor any kind of feeling, can be perceived. The heart, however, beats fifteen times in a minute, which is discovered by opening the chest. The blood continues to be fluid, and the intestines are not irritable. Even an electrical shock does not awake him: in the open air, he is never reduced to a torpid state.”

M. Sulzer mentions the gradual manner in which this animal recovers his vigour and activity.

“ The utility of the hamster is confined to the destruction of mice; but he himself is much more mischievous †.”

We wish that M. Sulzer had marked the precise degree of cold, or want of air, which renders these animals torpid; for we still maintain, what was formerly remarked, that a hamster confined in a cage, and in a room where water froze, was not reduced to a torpid state during the winter 1763. This fact will receive additional confirmation from the following observations of M. Allamand, which he has published at the end of the Dutch edition of my work.

* The *illtis* is the polecat, and not a rat, as this author alleges.

† Observat. sur le Rat de Blé, par M. Sulzer. — *Gazette de Littérature*, 13 Sept. 1774.

*Addition to the History of the Hamster, by M.
Allamand.*

The hamster is a quadruped of the mouse kind, which sleeps during the winter, like the marmots. The legs and neck are short; the head is thickish; and the mouth is garnished on each side with whiskers. The ears are large and almost naked. The tail is short, and one half of it naked. The eyes are round and prominent. The colour of the hair is a mixture of red, yellow, white, and black. These characters exhibit not the most alluring picture; and the manners of the animal are still more disgusting. He has no love but for himself, and possesses not a single social quality. He attacks and devours every animal he is capable of conquering, not excepting his own species. Even the instinct which draws him to the other sex, lasts only a few hours; at the end of which the female would not meet with a better fate, if she did not take the precaution of avoiding, or of killing him first. To these odious qualities, however, Nature has joined others, which, without rendering him more amiable, make him deserve a distinguished rank in the history of animals. He belongs to the small number of those which pass the winter in a torpid state; and he is the only European animal that is provided with cheek-pouches. His address in making a subterraneous abode, and the industry with which he lays up provisions, merit the attention of the curious.

The hamster inhabits not all soils or climates indifferently. He is neither found in very warm nor in very cold countries. As he lives upon grains, and dwells under the earth, stony, sandy, or argillaceous soils are as inconvenient to him as meadows, forests, and marshy grounds. He requires a soil which is easily pierced, and yet so tenacious as not to tumble down. He likewise chooses countries which abound in all kinds of grain, that he may not be obliged to seek his food at great distances, for which he is not well qualified. In Thuringia, the soil of which possesses all these qualities, the hamsters are more numerous than in any other country.

The habitation which the hamster digs to the depth of three or four feet, consists of more or fewer apartments, according to the age of the animal. The principal chamber is lined with straw, and serves him for a lodging. The others are destined for the preservation of provisions, of which he amasses great quantities during the autumn. Each hole has two apertures; the one descends obliquely, and the other, through which the animal goes out and in, is perpendicular.

The holes of the females, who never live with the males, are somewhat different. In those where she brings forth, there is seldom above one chamber for provisions; because the short time the young remain with her requires not a great store of food. But, instead of one perpendicular hole, she makes seven or eight, to give free pas-

sage to her young. Sometimes the mother banishes her offspring, and continues to possess this hole; but she commonly digs another, and lays up as much provisions as the season permits her to collect.

The hamsters copulate about the end of April, when the males enter the apartments of the females, where they remain only a few days. If two males happen to meet in the same hole, a furious combat ensues, which generally terminates in the death of the weakest. The conqueror takes possession of the female, and both, though at every other period they persecute and kill each other, lay aside their natural ferocity during the few days their amours continue. They even mutually defend each other against aggressors. When a hole is opened at this period, and the female perceives that her husband is about to be carried off, she darts upon the ravisher, and makes him feel the fury of her vengeance, by inflicting deep and painful wounds.

The females bring forth twice or thrice every year. Their litter is never fewer than six, and oftener from sixteen to eighteen. The growth of these animals is very rapid. At the age of fifteen days, they already begin to dig the earth. Soon after, the mother banishes them from her habitation; so that, at the age of about three weeks, they are abandoned to their own management. The mother, in general, discovers little tenderness for her offspring. She who, in the

season of love, defends her husband with courage, flies in the most dastardly manner when her family is threatened with danger. Her only solicitude is to provide for her own safety. With this view, when pursued, she digs deeper into the earth, which she performs with an amazing quickness. The young would willingly follow her; but she is deaf to their cries, and even shuts the hole which she had made.

The hamster feeds upon all kinds of herbs, roots, and grains, which the different seasons produce. He even eats the flesh of such animals as he can conquer. As he is not adapted for long journeys, his magazine is first stocked with the provisions which are nearest his abode. This is the reason why some of his chambers are frequently filled with one kind of grain only. When the harvest is reaped, he goes to a greater distance in quest of provisions, and carries every article he can find, without distinction, to his granary. To facilitate the transportation of his food, Nature has furnished him with two pouches in the inside of each cheek. On the outside, these pouches are membranous, smooth, and shining; and, in the inside, there are a great many glands, which continually secrete a certain fluid, to preserve their flexibility, and to enable them to resist any accidents which may be occasioned by the roughness or sharpness of particular grains. Each of these cheeks is capable of containing an ounce and a half of grain, which, on his return to his habitation, he empties, by press-

ing his two fore-feet against his cheeks. When we meet a hamster having his cheeks filled with provisions, it is easy to seize him with the hand, without the risk of being bitten; because, in this condition, he has not the free motion of his jaws. But, if he is allowed a little time, he soon empties his pouches, and stands upon his defence. The quantity of provisions found in the holes depends on the age and sex of the inhabitant. The old hamsters often amass a hundred pounds of grain; but the young and the females content themselves with a quantity much smaller. Their object in laying up provisions is not to nourish them during the winter, which they pass in sleep and without eating, but to support them after they awake in the spring, and previous to their falling into a torpid state.

At the approach of winter, the hamsters retire into their subterraneous abodes; the entry to which they shut up with great address. There they remain in perfect tranquillity, and feed on their provisions, till the frost becomes severe, when they sink into a torpid state, which resembles a profound sleep. When, during this period, the holes are opened, which we know by a small eminence of earth raised near the oblique passage formerly described, we find the hamster lying upon a bed of soft straw. His head is bended under his belly, between the two fore-legs, and those behind rest upon his muzzle. The eyes are shut; and, when the eyelids are forced open, they instantly close again. The

members are stiff, like those of a dead animal, and the whole body feels as cold as ice. Neither respiration nor any other sign of life can be perceived. When dissected in this situation, we see the heart alternately contracting and dilating. But this movement is so slow, that the pulsations exceed not fifteen in a minute; though, when the animal is awake, the heart beats a hundred and fifty strokes during the same time. The fat has the appearance of being coagulated. The intestines are as cold as the external parts of the body, and discover not the smallest irritability upon the application of spirit of wine or oil of vitriol. During this operation, the animal seems to feel very little. He sometimes opens his mouth, as if he wanted to respire. But his lethargy is too strong to admit of his wakening entirely.

The lethargy of the hamster has been ascribed solely to a certain degree of cold: this may be true with regard to the dormice and bats. But experience proves, that, in order to render the hamster torpid, he must also be excluded from all communication with the external air: for, when a hamster is shut up in a cage filled with earth and straw, and exposed in winter to a degree of cold sufficient to freeze water, he never becomes torpid. But, when the cage is sunk four or five feet under ground, and well secured against the access of air, at the end of eight or ten days he is equally torpid as if he had been in his own burrow. If the cage is brought up to the surface, the hamster will awake in a few

hours, and resume his torpid state when put below the earth. This experiment may be repeated with the same success, as long as the frost continues. We have a farther proof that the absence of the air is one of the causes of torpidness in the hamster: when brought up from his hole, in the coldest weather, and exposed to the air, he infallibly awakes in a few hours. This experiment succeeds equally either in the night or day, which proves that the light forms no part of the cause.

It is curious to observe the hamster passing from a torpid to an active state. He first loses the rigidity of his members, and then makes a profound respiration, but at long intervals. His legs begin to move, he opens his mouth, and utters disagreeable and rattling sounds. After continuing these operations for some time, he opens his eyes, and endeavours to raise himself on his legs. But all these movements are still reeling and unsteady, like those of a man intoxicated with liquor. He, however, reiterates his efforts, till he is enabled to stand on his legs. In this attitude he remains fixed; as if he meant to reconnoitre, and repose himself after his fatigues. But he gradually begins to walk, to eat, and to act in his usual manner. This passage, from a torpid to an active state, requires more or less time, according to the temperature of the air. When exposed to a cold air, he sometimes requires more than two hours to awake, and, in a more temperate air, he accomplishes his purpose in less than one hour. It is probable that

this change is produced imperceptibly when the animal is in his hole, and that he feels none of the inconveniences which arise from a sudden and forced reviviscence.

The life of a hamster is divided between the necessary cares of satisfying his natural appetites, and the fury of combating. He seems to have no other passion but that of rage, which induces him to attack every animal that comes in his way, without attending to the superior strength of the enemy. Ignorant of the art of saving himself by flight, rather than yield, he allows himself to be beat to pieces with a stick. If he seizes a man's hand, he must be killed before he quits his hold. The magnitude of the horse terrifies him as little as the address of the dog, which last is fond of hunting him. When the hamster perceives the dog at a distance, he begins with emptying his cheek-pouches, if they happen to be filled with grain. He then blows them up so prodigiously, that the size of the head and neck greatly exceeds that of the rest of the body. In fine, he raises himself on his hind-legs; and, in this attitude, darts upon the enemy. If he catches hold, he never quits it but with the loss of his life. But the dog generally seizes him behind, and strangles him. This ferocious temper prevents the hamster from being at peace with any other animal. He even makes war against his own species, not excepting the females. When two hamsters rencounter, they never fail to attack each other, and the stronger always devours the weaker. A combat between

a male and a female commonly lasts longer than between two males. They begin by pursuing and biting each other; then each of them retires to a side, as if to take breath; a little after, they renew the combat, and continue to fly and to fight till one of them falls. The vanquished uniformly serves for a repast to the conqueror.

THE JERBOAS*.

JERBOA is a generic name employed to denote those animals which are remarkable for the disproportion between the hind and fore-legs, the latter not exceeding the length of a mole's paws, and the former resembling the legs of a bird. In this genus, we are acquainted with four species, or distinct varieties: 1. The tarsier, or woolly jerboa, formerly mentioned, which is certainly a particular species, because it has five toes on each foot, like those of a monkey. 2. The jerboa, properly so called †, which has four

CHARACTER GENERICUS.

Dentes primores utrinque duo.

Pedes anteriores brevissimi; *posteriores* longissimi.

Claviculæ perfectæ.

† The Egyptian jerboa, with thin, erect, and broad ears, full and dark eyes, and long whiskers. The fore-legs are an inch long, with five toes on each, the inner, or thumb, being scarce apparent; but that, as well as the rest, furnished with a sharp claw. The hind-legs are two inches and a quarter long, thinly covered with hair, and exactly resembling those of a bird; three toes on each foot, covered above and below with hair: the middle toe is the longest, and on each is a pretty long sharp claw. The length, from nose to tail, is seven inches and one quarter; the tail ten inches, terminated with a thick black tuft of hair; the tip white. The rest of the tail

toes on the fore-feet, and three on the hind.
3. The alagtaga *, whose legs are constructed like those of the jerboa, but which has five toes

is covered with very short coarse hair. The upper part of the body is thin, or compressed sideways. The part about the rump and loins is large. The head, back, sides, and thighs, are covered with long hair, ash-coloured at the bottom, and pale tawny at the ends. The breast and belly are whitish, and the hair long and soft.—*Pennant's Synops. Quadr.* p. 295.

Mus dipus. — *Theophr. opusc.* p. 295; *Aelian. Hist. Anim.* lib. x. c. 26.

Mus bipes Plinii; lib. xv. c. 65.

Jerboa, or *Yerbo*, the Arabian name of this animal. — *Shaw's Travels*, p. 248; *Texeira's Travels*, p. 21.

Gerbua. — *Edwards's Gleaning*, p. 219; *Plaidsted's Journal*, p. 59.

Mus jaculus, cauda elongata floccosa, palmis subpentadactylis, femoribus longissimis, brachiis brevissimis. — *Linn. Syst. Nat.* p. 86; *Hasselquist*, p. 193.

Gerboise. — *Voyage de Paul Lucas*, tom. ii. p. 73.

* Siberian jerboa, with very long, transparent, narrow ears, long whiskers, and five toes on the fore-feet, three on the hind-feet, pointing forward, and a fourth behind, about an inch above the heel. The colour of the upper part of the body is tawny, and of the lower, whitish. In form of body, legs, and tail, it agrees with the Egyptian jerboa. — *Pennant's Synops. Quadr.* p. 296.

Alagtaga is the Tartarian name of this animal, which, according to Messerschmid, signifies *an animal which cannot walk*. The word *alagtaga*, however, appears to be nearly the same with *letaga*, which is applied to the flying squirrel. Hence, I am inclined to believe, that *alagtaga*, as well as *letaga*, are generic, rather than specific names, and that they denote a *flying animal*, especially as Strahlenberg, quoted by Gmelin, calls this animal the *flying hare*.

Cuniculus seu lepus Indicus, utius dictus. — *Aldrov. de Quad. digit. fig.* p. 395. — *Nota*, 1. Linnæus and Edwards

on the fore-feet and three on the hind, with a spur, that may pass for a thumb, or fourth toe, much shorter than the others. 4. The *damani Israel**, or *lamb of Israel*, which may be the same animal called *mus longipes* by Linnæus†, and which has four toes on the fore-feet, and five on those behind.

The head of the jerboa has a great resemblance to that of the rabbit; but its eyes are larger, and its ears shorter, higher, and broader, in proportion to its size. The nose is flesh-coloured and naked; and the muzzle is thick and short. The opening of the mouth is very small; the upper jaw is very broad, and the under narrow and short. The teeth are like those of the

have improperly referred this figure to the jerboa, though, by the spur, or fourth toe on the hind-feet, which is very conspicuous, it belongs to the species of *alagtaga*. *Nota*, 2. *Aldrovandus* was wrong in denominating this animal *utias*, which is an American word, and probably the same with *agouti*.

Cuniculus pumilio saliens, cauda longissima. — *Gmelin, Nov. Com. Acad. Petrop.* tom v. tab. 11, fig. 1.

Cuniculus pumilio saliens, cauda anomala longissima. — *Briss. Quad.* p. 103.

Flying-hare. — *Strahlenberg; Hist. Russ.* p. 370. •

* *Daman Israel*, lamb of the children of Israel. — *Shāw's Travels.*

Animal quoddam pumilo cuniculo non dissimile, sed cuniculis majus quod *agnum filiorum Israel* nuncupant. — *Prosp. Alpin. Hist. Ægypt.* lib. iv. cap. 9, 232.

† *Mus longipes, cauda elongata vestita, palmis tetradactylis, plantis pentadactylis, femoribus longissimis.* — *Linn. Syst. Nat.* p. 84. The word *femoribus* is here improperly applied; for the metatarsi, or first bones of the foot alone, are extremely long in this animal.

rabbit; and the whiskers round the mouth are composed of long black and white hairs. The fore-feet are extremely short, and never touch the ground, being used only as hands to convey victuals to the mouth. These hands have four fingers, armed with claws, and the rudiments of a fifth without any claw. The hind-feet have only three toes, of which the middle one is longest, and all three are armed with claws. The tail is three times longer than the body; it is covered with small stiff hairs, of the same colour with those on the back, and the extremity of it is garnished with longer, softer, and more bushy hair. The legs are naked and flesh-coloured, as well as the nose and ears. The top of the head and back are covered with reddish hair, and the flanks, the under part of the head, the throat, the belly, and the inside of the thighs, are white: below the reins and near the tail there is a large, black, transverse band, in the form of a crescent*.

The alagtaga is smaller than a rabbit. His ears are long, broad, naked, thin, transparent, and spread over with very conspicuous blood-vessels. The upper jaw is much larger than the under, but blunt and pretty broad at the extremity. It has large whiskers round the mouth. The teeth are like those of a rat. The eyes are large; and

* The following are the dimensions of this animal, as measured by Hasselquist: Magnitudo corporis ut in mure domestico majore. Mensuratio capit. poll. 1 corp. poll. 2½ caud. spith. 1½ post. ped. spith. ½ anter. infra pollicem. Myst. longiss. poll. 3.

the iris and pupils are brown. The body is narrow before, broad, and almost round behind. The tail is very long, not so thick as a small finger, and two thirds of it is covered with short stiff hair; on the last third the hairs are longer, more bushy, softer, and become longer toward the extremity, where they form a kind of tuft, which is black at the beginning, and white at the end. The fore-feet are very short, and have five toes; those behind are very long, and have only four toes, three of which are placed before, and the fourth, which is a thumb, stands at a distance from the others. All these toes are armed with claws, which are shorter in the fore than in the hind-feet. The hair of this animal is soft, pretty long, yellow on the back, and white on the belly*.

From comparing these two descriptions, the first of which is taken from Edwards and Hasselquist, and the second from Gmelin, it appears that the jerboa and alagtaga resemble each other in a striking manner. The jerboa is only smaller than the alagtaga, and has but four toes on the

* The following are the dimensions of this animal, as measured by Gmelin: Longitudo ab extremo rostro ad initium caudæ poll. 6; ad oculos poll. 1. Auricularum poll. $1\frac{1}{2}$; caudæ poll. 8; pedum anteriorum ab humero ad extremos usque digitos poll. $1\frac{1}{2}$ pedum posteriorum a suffraginibus ad initium usque calcanei poll. 3; a calcaneo ad exertum digiti posterioris poll. 1; ab exortu digiti posterioris ad extremos ungues poll. 2. Latitudo corporis anterioris poll. $1\frac{1}{2}$ posterioris poll. 3. auricularum poll. $\frac{1}{2}$.

fore-feet, and three on the hind, without any spur; while the alagtaga has five toes on the fore-feet, and three and a spur on the hind-feet. But I suspect that this difference is not constant; for Dr. Shaw, who has given a figure and description of a Barbary jerboa, represents it with a spur or fourth toe on the hind-feet; and Mr. Edwards remarks, that he carefully examined two jerboas which he saw in England, and could discover no spur. Hence this character, which might serve as a specific distinction between the jerboa and alagtaga, by not being constant, answers no purpose, but marks rather the identity than the diversity of the species. Neither does the difference in size prove them to be distinct species: Edwards and Hasselquist may have described only young jerboas, and Gmelin an old alagtaga.

Two circumstances, however, render this matter still doubtful; the proportion of the tail, which is much larger in the jerboa than in the alagtaga, and the difference of the climates which they inhabit. The jerboa is common in Circassia*, Egypt†, Barbary, and Arabia; and the

* In Circassia, Persia, Arabia, and the environs of Babylon, there is a kind of field-mouse, called *jerhuach* in the Arabic language, which is nearly of the size and colour of the squirrel. . . . When it leaps, it darts five or six feet above the ground. . . . It sometimes quits the fields, and takes up its abode in the houses. — *Voyage d'Olearius*, p. 177.

† In Egypt, I saw two small animals, that ran very quickly on their hind-feet, which were so long that the creatures

alagtaga in Tartary, along the Wolga, and as far as Siberia. It is seldom that the same animal inhabits climates so different; and, when it does happen, the species undergoes great changes: this we presume to be the case with the jerboa, of which, notwithstanding these differences, the alagtaga seems to be only a variety.

These animals generally conceal their hands or fore-feet among the hair; so that, at first sight, they seem to have only two feet. In transporting themselves from place to place, they do not walk, or advance one foot after another, but leap nimbly to the distance of three or four feet. When reposing themselves, they sit on their knees, and sleep only during the day. They eat grain and herbage, like the hare. Their dispositions are mild, and yet they can never be tamed beyond a certain point. They dig holes in the earth like the rabbits, and in a much shorter time. About the end of summer, they lay up herbage in their magazines, where, in cold countries, they pass the winter.

As we have had no opportunity of dissecting this animal, we shall subjoin the remarks of M. Gmelin upon its internal structure*.

seemed to be mounted on stilts. These animals burrow like rabbits. I carried off seven of them; two of which I brought to France, where they lived in the royal menagery two years. — *Voyage de Paul Lucas*, tom. ii. p. 74.

* *Gæophagus*, uti in lepore et cuniculo, medio ventriculo inseritur; intestinum cæcum breve admodum sed amplum est, in processum vermiformem, duos pollices longum abiens. *Choledochus* mox infra pylorum intestinum subit. *Vesica*

With regard to the daman, or lamb of the children of Israel, which seems to be a kind of jerboa, because its fore-legs are remarkably shorter than the hind, having never seen this animal, we cannot do better than copy the remarks of Dr. Shaw, who had an opportunity of comparing it with the jerboa, and speaks of them as two distinct species. "The daman," says this author, "is likewise an animal of Mount Libanus, though common in other places of this country. It is a harmless creature, of the same size and quality with the rabbit; and with the like incurvating posture and disposition of the fore-teeth. But it is of a browner colour, with smaller eyes, and a head more pointed, like the marmots. The fore-feet likewise are short, and the hinder are nearly as long in proportion as those of the jerboa. Though this animal is known to burrow sometimes in the ground; yet, as its usual residence and refuge are in the holes and clefts of the rocks, we have so far a

urinaria citrina aqua plena; uteri nulla plane distinctio; vagina enim canalis instar sine ullis artificijs in pubem usque protensa in ano mox cornua dividitur, quæ ubi ovariis appropinquant multas inflexiones faciunt, et in ovariis terminantur. Peneus masculus habet satis magnum, cui circa vesicæ urinariæ collum vesiculæ seminales unciam cum dimidio longæ, graciles, et extremitatibus intortæ adjacent. Foramen aut sinus quosdam inter anum et peneum, aut inter anum et vulvam nullo modo potui discernere, licet quasvis in indagatione ista cautelas adhibuerim. . . . Cuniculi Americani, porcelli pilis et voce Maragr. Fabrica internarum partium ab hoc animali non multum abludent. — *Gmelin, Nov. Com. Petrop.* tom. v. art. 7.

more presumptive proof, that this creature may rather be the saphan of the Scriptures, than the jerboa. I could not learn why it was called daman Israel, *i. e.* Israel's lamb, as these words are interpreted *." Prosper Alpinus, who mentioned this animal before Dr. Shaw, says, that its flesh makes excellent eating, and that it is larger than the European rabbit. But this last fact seems to be suspicious; for Dr. Shaw has omitted this passage of Prosper Alpinus, though he transcribes all the other remarks of that author.

* Shaw's Travels, p. 218.

THE JERBOA.

WE shall here give a short history of the different species of jerboas, and a particular description of the jerboa of Edwards and Hasselquist. The little differences which may be remarked in this species do not constitute more than a slight variety, the colour and length of the fore-paws, and the claws, not appearing to be constant.

In the desert of Barca there is a jerboa distinct from the above, inasmuch as the body is thinner, the ears longer, round, and nearly of equal size from the top to the bottom; the claws are much shorter, and the colours in general lighter; the band on the thighs is not so apparent; the heels black; the end of the muzzle much flatter *. These distinctions are but very slight, and may be considered as mere varieties.

Jerboas are found in all parts of Africa, from Barbary to the Cape of Good Hope, and we also find them in Arabia and in several other countries of Asia; but it appears that they differ greatly in size, and it is surprising that, among these long-legged animals, some are found twenty, and even

* Note communicated to M. de Buffon, by Mr. Bruce.



JERBOA.

an hundred times larger than the little jerboas of which we have spoken.

“ I have seen at the Cape menagery,” says M. de Querhoënt, “ an animal (caught in the country) which they call *leaping hare*: it is about the size of the European rabbit, with a head somewhat like it; the ears are at least as long; the fore paws are very short and small; they use them to convey any thing to the mouth, but I dont think they are of much service in walking: it generally hides them entirely in its long hair. The hind paws are large and thick; the toes, four in number, are long and separated: the tail is at least the length of the body, and covered with long hairs. The body, the ends of the ears, and the tail, are of a yellowish colour. The eyes are large, black, and prominent. It is fed with lettuce leaves, is very fond of nibbling; and has pieces of wood put into its cage for its amusement *.”

Mr. Forster sent us a drawing of this great jerboa, or leaping hare of the Cape (see the plate). The drawing was accompanied with the following remark. “ This jerboa,” says he, “ has five toes before and four behind. The fore claws are black, long, thin, and curved; those behind are brown, thick, short, of a conical shape, and rather curved towards the end. The eye is very large and black; the nose and nostrils are ferruginous. The ears are large, smooth, naked

* Extract from the Journal of the Voyage of M. de Querhoënt.

within, and covered on the outside with short slate-coloured hair. The head resembles that of the little jerboas: it has whiskers round the mouth, and at the angle of the eyes: the legs, or rather the fore arms, are extremely short, and the hands very small: the hind-legs, on the contrary, are very thick, and the feet excessively long. The tail, which is also very long, and covered with hairs, appears thin at its origin, and very thick at the end; it is of a deep fawn colour for the greatest part of its length, and of a tawny brown near the end: the legs and feet are pale tawny mixed with gray: the body and head are of a pale yellow, nearly white; the thighs and belly are yellower: all the upper part of the body, as well as the end of the jaw, the top of the nose, and the hands, are of a reddish tint." In short, we think that this Cape jerboa, described by M. de Querhoënt and Mr. Forster, is the same that M. Allamand has described and figured in the Dutch edition.

It appears, also, that the animal whose history we have given under the name of tarsier, is of the same genus as the jerboas, and that it belongs to the Old Continent; no species of jerboa, either great or small, being found, except in Africa or Asia, we can scarcely doubt that the tarsier belongs to one or other of these parts of the world.

I have seen several figures of jerboas designed after the antique, particularly from an ancient medal of Cyrene which had a jerboa on the reverse, unlike that which Dr. Shaw has described by the name of *daman Israel*; for it



GREAT JERBOA.

differed greatly in size, in the shape of the head, in the eyes, and in several other characters; it is easy to prove that Dr. Shaw is mistaken in referring the daman Israel to this species of jerboa.

That on the Cyrenean medal is a true jerboa, and has no analogy with the daman. I have seen the figure of several jerboas in other engravings taken from the Oxford marbles, some of which had their fore paws, and especially their ears, much longer, than those that we have figured; but besides, these jerboas, engraved on the antique marbles, are not represented with sufficient accuracy to enable us to refer them to our species.

Addition to the Article Jerboa by M. Allamand.

M. de Buffon distinguishes four different species of jerboa, but he has seen and figured the tarsier only; what he has said of the other three is taken from preceding authors: among others, he has borrowed the description of the jerboa belonging to the second species of Edwards and Hasselquist.

This animal is actually living at Amsterdam, at Dr. Klockner's, who allowed us to make a drawing from it, and obligingly communicated what was most worthy of remark: in the course of these observations we shall add some particulars to those which M. de Buffon has mentioned.

His description is very exact: in the jerboa of Dr. Klockner we retrace all that he has said, ex-

food, and for a year and a half, till now, it has continued to like it.

Some authors have ranked this animal among the rabbits, which it resembles by the colour and fineness of the hair, and by the length of its ears: others have taken it for a rat, because it is nearly of the same size; but it is neither a rabbit nor a rat; it is distinguished from both by the extreme disproportion between the fore and hind-legs, and the excessive length of its tail. It is distinct from the *alagtaga*, described and figured by M. Gmelin, but which is so nearly allied to our jerboa, that we may consider it (with M. de Buffon) as a variety only of the same species.

It must not be forgotten that the jerboa has a whisker of long stiff hairs round its mouth, among which there is one of an extraordinary length, since it measures three inches.

Prosper Alpinus, speaking of the daman, or lamb of Israel, which M. de Buffon has justly ranked with the jerboas*, says that this animal is larger than our European hare, which was doubted both by Dr. Shaw and M. de Buffon. We are now certain that Alpinus did not exaggerate. All Europe know that Messrs. Banks and Solander, animated by a zeal, which I may almost call heroic, to advance our knowledge of astronomy and natural history, undertook a voyage round the world.

* I shall hereafter give my reasons for differing from this opinion.

On their way, they saw two jerboas that exceeded our largest hares in size, and beat our best dogs in the chase. This was not one of the least of an ample collection of curiosities which they brought home with them, and which would afford subjects sufficient to fill a thousand plates.*

*Second Addition to the History of the Jerboas
by M. Allamand.*

I have observed, in my history of the jerboa, that Prosper Alpinus was right in saying that the daman, which belongs to the genus of jerboa, was larger than our European rabbit. Depending on my English correspondents, I have asserted that Mr. Banks brought one of these animals with him, on his return from his voyage round the world, which exceeded our largest hares in size. I am now enabled to say something more positive about this animal, which is described and figured in captain Cook's First Voyage, and whose skin Mr. Banks has had the goodness to show me. It differs from every other species of jerboa as yet described*, not only in size, which approaches that of a sheep, but also by the number or arrangement of the toes. Parkinson †, who went with Mr. Banks in quality of draughtsman,

* This animal belongs to another genus. It is the kangaroo *didelphis gigantea* of Gmelin, and *macropus major* of Shaw. W.

† Journal of a Voyage to the South Sea, p. 145.

acquaints us that it had five toes on the fore-feet armed with hooked nails, and four on the hind-feet: it weighed only thirty-eight pounds, as it was young, and had not arrived at its full size; its head, neck, and shoulders, were small, compared with the other parts of its body: its fore-legs were eight inches long, and its hind-legs twenty two. It advanced by very considerable leaps, holding itself upright; its fore-legs were applied close to its breast, and appeared to be fit only for digging the ground: the tail was thick at its base, and regularly diminished to its extremity: its body was entirely covered with hair of a deep mouse-gray colour, except the head and ears, which had some resemblance to those of the hare.

By the foregoing description, it appears that this animal is not the jerboa with four toes before and three behind, nor the daman, or lamb of Israel, which has four toes before and five behind*, and consequently ought not to be confounded with it; the *alagtaga* is the nearest allied to it in the number of its toes, having five before and three behind, with a spur that may pass for a thumb, or fourth toe, as M. de Buffon has remarked: but the difference of size, the distance between the places, and diversity of climate where these animals are found, hardly permit us to consider them as one and the same species. That discovered by Mr. Banks inhabits New

* This is true of the pretended daman of Dr. Shaw, which is a jerboa; but false with respect to the true daman, which has only three toes behind.

Holland; the alagtaga is common in Tartary and on the Wolga.

We have an animal living in Holland, which may be the same as that from New Holland, if we may judge from the following description, for which I am indebted to Dr. Klockner, to whom I also owe what I have previously said respecting the little jerboa*.

This animal was brought from the Cape of Good Hope by the Sieur Holst, to whom it belonged: it was caught on a mountain called Snewberg, situated at a very great distance from the Cape towards the interior of the country. The Dutch boors call it *ardmannetje* of *Springendchaas*, or *leaping hare*. It is as large as a hare or a rabbit; its hair is reddish at top, but ash coloured at the root, and intermixed with some longer hairs tipped with black. Its head is very short, but large and flat between the ears, and terminated by a blunt muzzle, with a very little nose: the upper jaw is large, and hides the lower one, which is very short and small. There is no other known quadruped, which has the opening of its mouth so far backward, beneath the head.

The ears are a third shorter than those of the rabbit: they are very thin, and transparent in a strong light; they are blackish above, and of a flesh colour, and more transparent at bottom. It has large eyes, close to the head, of a brown tend-

* The following description relates not to the kangaroo, but to the Cape jerboa, *Dipus cafer*, Linu.

ing to black: the eyelids are provided with lashes, and surmounted with five or six very long hairs. Each jaw has two very strong cutting teeth, those of the upper jaw are the shortest. The upper lip is furnished with a whisker of long hairs.

The fore-feet are small, short, and situated close to the neck: they have five toes on each, also very short, and placed on the same line; they are armed with crooked claws, two thirds larger than the toes themselves, and resting on a fleshy lump situated beneath. The hind-legs are larger than those before; the feet have four toes, of which the two interior are shorter than the third, which is a third larger than the outer one. All of them have claws, which are convex above, and concave beneath.

The body is narrow before, enlarging a little backwards: the tail is as long as the body; two thirds of it is covered with long reddish hairs, and the rest is black.

Like the other kinds of jerboas, they use the hind-feet only in walking, or, to speak more properly, in leaping: these feet are also very strong, and, if they are taken by the tail, they strike with great force. We could not determine the length of their greatest leaps, because they had no opportunity to exert themselves in the small room where they were shut up. In a state of liberty, these animals are said to leap thirty feet.

It makes a sort of grunting noise. It feeds in a sitting posture, extending its great legs horizontally, and bending its back: its fore-feet

serve it like hands to convey the food to its mouth; it uses them also to dig the ground, which it does with such celerity, that in a few minutes it entirely buries itself. Its common food is bread, roots, wheat, &c.

It sleeps in a singular attitude: it sits with its knees extended, placing its head almost between its hind-legs, and, with its two fore-feet, it holds its ears close upon its eyes: thus it seems to protect its head with its hands. It sleeps in the day, and is generally awake in the night.

We perceive by the above description, that this animal ought to be ranked in the class of jerboas, described by M. de Buffon, but that it differs, however, as well in size as by the number of its toes. Although the figure which we have given in plate 301 bears a strong resemblance to that of our jerboa, it nevertheless differs sufficiently to prevent being confounded with it.

If this be the same animal described by captain Cooke (as is very probable), the figure given by the English voyager, and in the French translation is not correct: the head is too long; the fore-legs are never hanging downwards as they are represented, ours always held them to its breast, so that the claws are placed immediately beneath the lower jaw, a situation which agrees with that given by the English author, but which has been badly expressed by the draughtsman and engraver.

In comparing these descriptions of M. Allamand, and summing up the observations we have read, we find, in this genus of jerboa, four very

distinct, known species : 1. The jerboa, or jerboa of Edwards, Hasselquist, and Allamand, which we have described and figured (plate 300); 2. Our tarsier ; 3. The great jerboa, or leaping hare of the Cape, which we have figured in plate 301; 4. The great New Holland jerboa, called kangaroo by the natives of the country ; it is nearly the size of a sheep, and consequently is a much stronger species than that of our jerboa, or leaping hare of the Cape. We have not thought it necessary to copy the figure of this jerboa, given in Cook's First Voyage, because it appears to us too defective, but we have here reported what this celebrated navigator has said of this singular animal, which, to this moment, has been found only on the continent of New Holland.

“ As I was walking this morning, at a little distance from the ship (in the Bay of Endeavour, coast of New Holland), I saw, myself, one of the animals which had been so often described : it was of a light mouse-colour, and in size and shape very much resembled a greyhound ; it had a long tail also, which it carried like a greyhound ; and I should have taken it for a wild dog, if, instead of running, it had not leapt like a hare or deer. . . . Mr. Banks also had an imperfect view of this animal, and was of opinion that its species was hitherto unknown. . . . On one of the following days, as our people went out at day-break in search of game, they saw four animals of the same kind, two of which Mr. Banks's greyhound fairly chased, but they threw him out at a great distance, by leaping over the



KANGAROO.

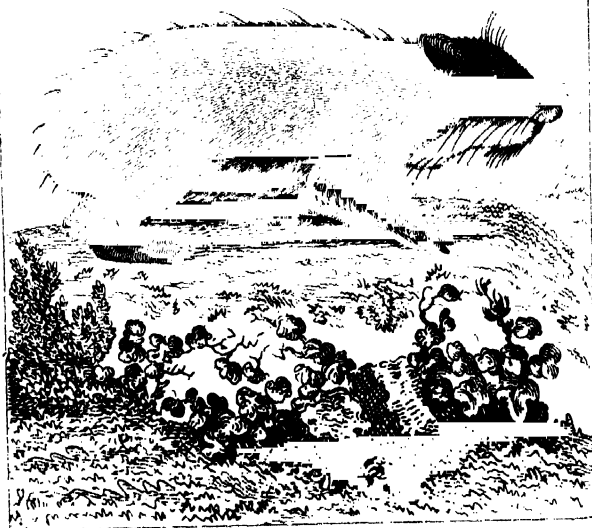
long thick grass, which prevented his running: this animal was observed not to run upon four legs, but to bound, or hop forward upon two, like the *jerbua*, or *mus jaculus*. . . . Some days after this, Mr. Gore (my lieutenant), went out with his gun, and had the good fortune to kill one of the animals which had been so much the subject of our speculation. . . . In form, it is most like the *jerbua*, which it also resembles in its motion, as has been observed already, but it greatly differs in size, the *jerbua* not being larger than a common rat, and this animal, when full grown, being as big as a sheep: this individual was a young one, much under its full growth, weighing only thirty-eight pounds. The head, neck, and shoulders, are very small in proportion to the other parts of the body; the tail is nearly as long as the body, thick near the rump, and tapering towards the end: the fore-legs of this individual were only eight inches long, and the hind-legs two and twenty: its progress is by successive leaps, or hops, of a great length, in an erect posture: the fore-legs are kept bent close to the breast, and seemed to be of use only for digging: the skin is covered with a short fur of a dark mouse or gray colour, excepting the head and ears, which bear a slight resemblance to those of a hare. This animal is called by the natives *kanguroo*. . . . The same Mr. Gore shot another kanguroo, which, with the skin, entrails, and head, weighed eighty-four pounds. Upon examination, however, we found that this animal

was not at its full growth, the innermost grinders not being yet formed. . . . These animals seem to be the most common species of quadrupeds in New Holland, and we met with them almost every time we went into the woods*.”

By this description, we clearly perceive that the great New Holland jerboa, is not the same animal as the leaping hare of the Cape of Good Hope; and the Forsters, who were induced to compare it with the New Holland kangaroo, agree with us, that they are two different species of the jerboa kind. On the other side, if we compare what Dr. Shaw says of the animal, which he calls daman, with the description of the leaping hare, we easily discover that these* two animals constitute but one and the same species, and that this learned traveller is mistaken in the application of the name daman, which belongs to quite a different creature.

From what has been said, we may also infer, that the leaping hare belongs not only to Africa, but likewise to Phenicia, Syria, and other regions of Asia Minor, of which the communication with Africa by Arabia is well ascertained; especially for such animals as live in the burning sands of the desert. Therefore, in separating the true daman from the jerboas, we ought to indicate the characters which distinguish them from each other.

* See Cook's First Voyage, by Hawkesworth, vol. iii. p. 561, 569, 577, and 586.



DAMAN ISRAEL.

THE DAMAN ISRAEL*.

WE are indebted to Mr. Bruce for the true description and perfect knowledge of the daman; previously indicated by Prosper Alpinus, and improperly referred by Dr. Shaw to the great jerboa. The following is what this illustrious traveller wrote me on the subject. "The daman Israel is not a jerboa; it is badly described by our Dr. Shaw, who says that the forefeet are short, compared with those behind, in the same proportion as those of the jerboas: this assertion is not true: see the figure of the

* CHARACTER SPECIFICUS.

HYRAX SYRIACUS. — *Linn. Syst. Nat. Gmel.* i. p. 167.

Hyrax (Syriacus) plantis tridactylis, unguibus omnibus subæqualibus. — *Schreb.* p. 923.

ASHKOKO. — *Bruce's Travels, App.* p. 139, pl. 23.

DAMAN ISRAEL. — *Buff. Hist. Nat. par Sonn.* xxxii. p. 281, pl. 20, fig. 1.

BRISTLY CAVY. — *Penn. Hist. Quadr.* ii. p. 92, p. 78. A.

SYRIAN HYRAX. — *Shaw's Gen. Zool.* ii. p. 219, pl. 164.

HABITAT

in Syria.

W

animal from my own drawing. It is very common in the neighbourhood of Mount Libanus, and still more so in Arabia Petrea: it is found also in the mountains of Arabia Felix, and in all Upper Abyssinia: it is of the shape and size of a rabbit: the fore-legs are rather shorter than those behind, but not more so than in the rabbit: a very distinguishing character is, that it has no tail, and that it has three toes on each foot, somewhat like the monkeys, without any nails, and surrounded with soft flesh, of a round shape. By this character and the want of a tail, it appears to approach the loris. The ears are small and short, lined with hair inside and out; in which it again differs from the rabbit. The body is white beneath; long single hairs, of a shining black colour, proceed from the back, the upper part of the body, and the thighs.

“ These animals always inhabit the cavities of rocks, and do not burrow in the earth, since they have no nails.”

I have figured this animal after Mr. Bruce's drawing; and it appears, by his account, that Dr. Shaw is mistaken; what still confirms it is, that he would not attend to what Prosper Alpinus has said of the daman, that its flesh is excellent food, and that it is *larger than our European rabbit*. He omits this last fact from the passage of Prosper Alpinus, which he otherwise quotes entire: I must therefore correct what I have myself said, and do justice to Prosper Alpinus, who first pointed out the daman Israel, and gave a just description of it.

Besides, there seems no doubt that the daman, or lamb of Israel, is the *saphan* of Holy Writ. Mr. Bruce says that he has not only seen it in the different parts of Asia, but even in Abyssinia. M. Sonnerat gave us an account of another daman inhabiting the country about the Cape of Good Hope, which we have figured. This Cape daman differs from the daman Israel in its shape, being rounder, and also in not having so many prominent hairs, nor those so long as in the daman Israel; it has, moreover, a great curved and furrowed nail on the inner toe of the hind-foot, which is not the case in the feet of the daman Israel. These characters appear sufficient for us to make it a distinct species from the Cape daman, and to separate it, as we have here done, from the Syrian daman, to which it nevertheless bears the greatest resemblance in size, in conformation, in the number of toes, and in the want of a tail.

Finally, we ought here to add, that, from the mere inspection of this Cape daman, we recognised it for the same animal that we had previously figured under the name of Cape marmot; observing, at the same time, that I only adopted this name provisionally, till I was better informed of the nature and true name of this animal; and, as the figure that I have given is from a very bad drawing, we ought in preference to consult that which I have here added *. We must also

* The correct figure will be found under the head of Cape Marmot; the plate which appeared in the former editions being suppressed.

refer what we have said of this pretended marmot to the Cape daman, and likewise what M. Allamand, from Dr. Klockner, has given us about this same animal under the denomination of *klipdas*, or rock-badger; observing that, by the mere conformation of the feet, it ought not to be placed in the badger genus, and that the name has been improperly applied to it. The following is what this learned naturalist has said in his additions to my work.

“ Messrs. Pallas and Vosmaër believe that this animal digs holes in the ground like our marmot, or our badger; because, say they, its feet are calculated for this operation; but judging by these same feet, we are led to believe that they are never used for a similar purpose, for they do not appear proper to dig with: they are covered beneath with a very soft skin, and the toes are armed with short and flat nails, which do not extend beyond the skin; this hardly bespeaks an animal that scratches up the earth to form a retreat. In truth, M. Pallas says, that the nails are very short, or rather that there are none, for they would be of no use in digging against the rocks, in the middle of which these animals live. This reason is ingeniously urged; but may we not be authorized also to say, and perhaps with better foundation, that Nature has given them such short nails, only because they are not wanted for digging? at least it is certain, that the one which is at Amsterdam does not employ them for this purpose, never being seen to scratch or dig the earth.

“M. Vosmaër says that these animals are slow in their motions; this is doubtless true of the one which he saw, but M. Pallas informs us that it died from plenitude; therefore may we not suppose that the fat with which it was loaded rendered it dull and heavy? • At least those which M. Klockner observed were not so: on the contrary, they were very quick in their movements; they leaped up and down with great agility, and always fell upon their feet; they loved to be on the highest places: their hind-legs are the longest, which makes them step like the Guinea pig more than any other animal, but they run like the hog. They never sleep in the day, but, when night arrives, they retire into their nest, where they creep into the middle of the hay, with which they entirely cover their bodies. At the Cape, they are said to nestle in the clefts of the rocks, where they make a bed of moss and the leaves of thorns, which, as well as other leaves that have but little moisture, serve them for food; at least that which is at Amsterdam prefers them to the roots and bread which are given him: he does not willingly eat nuts or almonds. In chewing, he moves the lower jaw like the ruminating animals, although he does not belong to that class. If we may judge of all the species from him, these animals do not arrive at their full size so soon as the Guinea pig: when this was caught, it was of the size of a rat, and probably about five or six weeks old: during the eleven months it was in this country, it did not attain the size of a wild rabbit, al-

though these animals arrive at that of our domestic rabbits.

“The Hottentots are very fond of a kind of medicine which the Dutch call *badger's urine*; it is a dry, blackish substance, of a very bad smell, that is found in the clefts of rocks and in the caverns: they pretend that it originates from the urine of these beasts. These animals, say they, are always accustomed to make water in the same place, and their urine deposits this substance, which in time dries and becomes solid: this is very probable; the one which is at Amsterdam always makes water in the same corner of the cage in which it is confined.

“Its head is small in proportion to its body; its eyes are scarcely half the size of those of the rabbit; its lower jaw is a little shorter than the upper; its ears are round and short; they are edged with very fine hairs, increasing in length as they approach those of the head: its neck is longer than broad, and this applies to the rest of the body: its fore-feet are bare beneath, and divided into lobes: above, they are covered with hairs to the root of the nails. M. Vosmaër says that its feet are naked: this ought to be understood of the lower part only. When it runs, the hind-legs appear scarcely longer than those before: they have but three toes, two of which are always on the ground when they walk, but the third, or inner toe, is shorter, and separated from the two others; this toe is raised whenever the animal moves, and it is armed with a nail of a singular make! M. Vosmaër is content with

saying that it is a curved nail. M. Pallas has said no more, and his figure has not made us better acquainted with it. This nail forms a furrow, the edges of which are very thin; they are near together at the base, and spread as they proceed, till they bend downwards and reunite, terminating in a little point, which extends into the cavity of the furrow near its middle. These nails are so situated, that the hollow of that of the right foot is partly turned towards the left foot, and partly downwards; it never touches the ground, since it is placed at the end of the toe, which the animal always raises when it walks: it does not appear probable that they are used to throw the ground behind, as M. Pallas has supposed; they are too soft for that. M. Klockner has better defined their purpose: the animal uses them to scratch his body and free himself from the insects and dirt which are found upon him; the Creator not being willing that any of the animals that he has formed, should want what is necessary to deliver them from every thing that may prove troublesome.

“On the body of our *klipdas* we see several scattered black hairs, a little longer than the rest; it is a singularity which deserves attention; nevertheless, I will not agree, with M. Pallas, that these hairs may be compared to porcupine's quills; they in nowise resemble them.

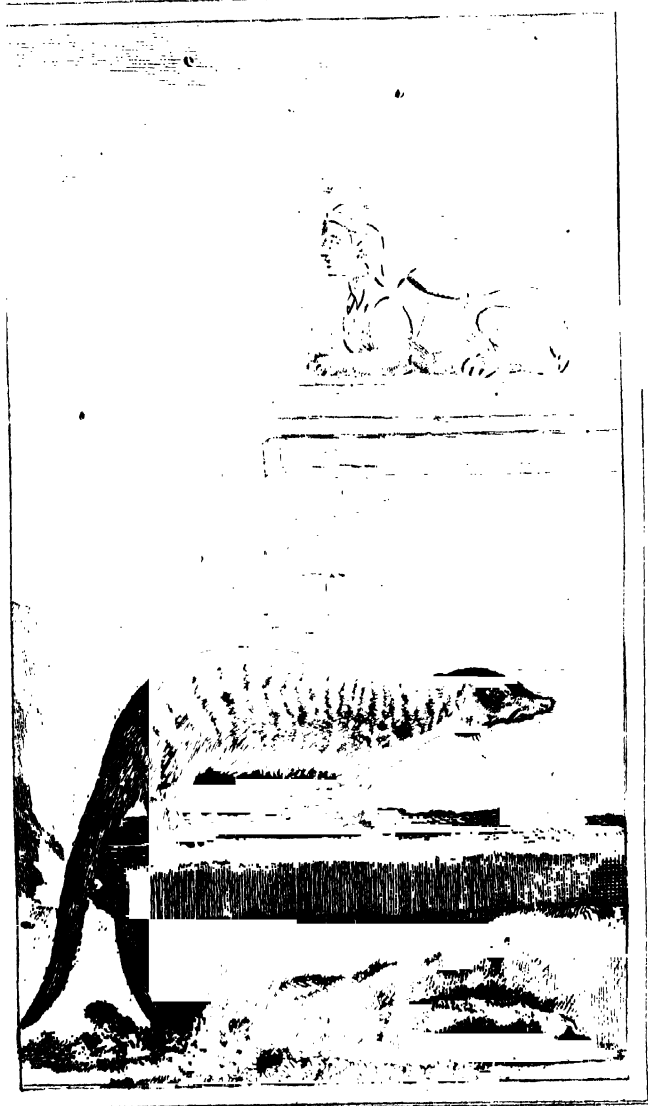
“The length of this animal's body, from the snout to the tail, as observed by Dr. Klockner at Amsterdam, is eleven inches and three quarters: that which I placed in the cabinet of our

academy, is only ten inches; but the one described by M. Pallas was fifteen inches and three lines, and the length of its head was three inches four lines: that of the Amsterdam specimen was but three inches and a half*.

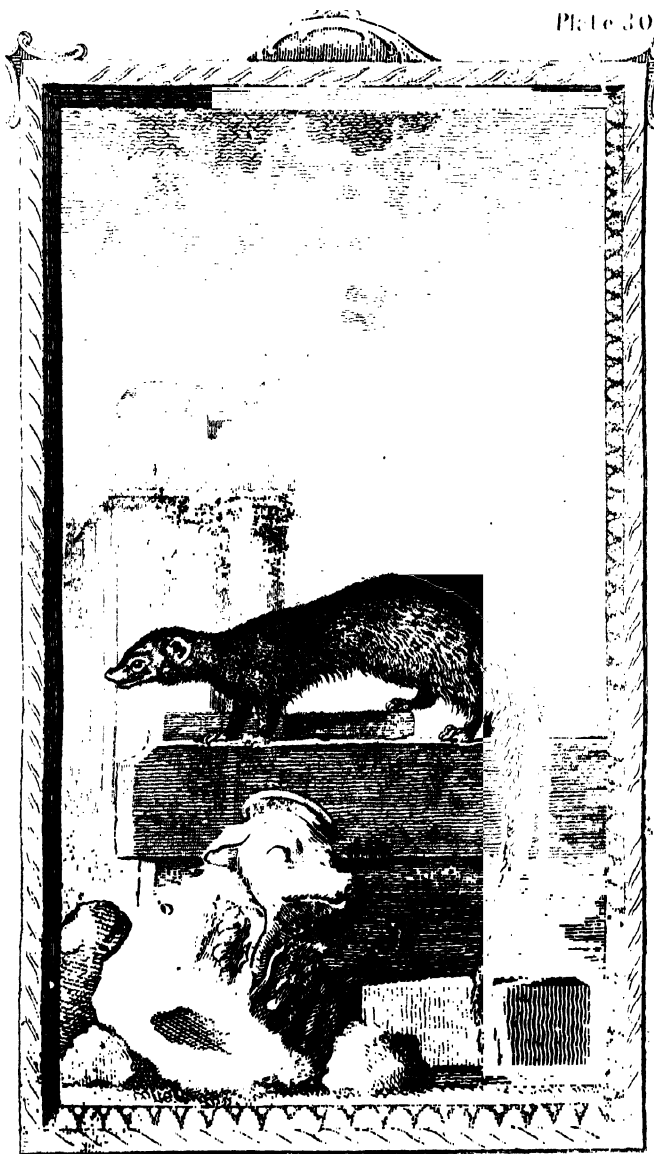
“The females of these animals have but four teats, two on each side, and if they have several young at a time, as is very probable, it is a new confirmation of what M. Buffon has said, *viz.* that the number of teats in each species of animal is not relative to the number of little ones which the female may produce and suckle.”

* There is probably a mistake in this measurement, as it was evidently intended to make this the shortest.

W.



MANGOUSTE.



C. A. Bell Sculp.

GREAT MANGOUSTE.

THE ICHNEUMON*.

IN Egypt, the ichneumon is domestic, like the cat in Europe, and preys upon mice and

* CHARACTER SPECIFICUS †.

VIVERRA ICHNEUMON. V. cauda e basi incrassata sensim attenuata, apice floccoso, pollicibus remotiusculis. — *Linn. Syst. Nat. Gmel. i. p. 84. — Schreb. iii. p. 427, pl. 115, B. — Erxleb. Mamm. p. 480.*

Mustela pilis ex albido et nigro variegatas vestita. — *Briss. Quadr. p. 181.*

Ichneumon, que les Egyptiens nomment Rat de Pharaon. — *Belon, Obs. p. 95.*

ICHNEUMON. — *Gesn. Quadr. p. 566. — Aldrov. Dig. p. 298.*

VAR.

VIVERRA MUNGO. V. cauda e basi crassa sensim attenuata non floccosa, pollicibus remotiusculis. — *Linn. Syst. Nat. Gmel. i. p. 84. — Schreb. iii. p. 430, pl. 116, A. B.*

VIVERRA ICHNEUMON. β. — *Linn. Syst. Nat. ed. 12, p. 63.*

MUSTELA GLAUCA. — *Ibid. ed. 5. Am. Acad. ii. p. 109.*

Viverra ex griseo rubescens. — *Briss. Quadr. p. 177.*

Mustela sive viverra Indis Mangutia. — *Kamph. Am. Exot. p. 574. pl. 567.*

Viverra Indica ex griseo rufescens. — *Ray's Quadr. p. 198.*

LA MANGOUSTE. — *Buff. Hist. Nat. par Sonn. xxxii. p. 361, pl. 22.*

INDIAN ICHNEUMON. — *Edw. p. 199.*

† For the generic character, see Martin.

rats*. But his appetite for flesh is still more violent, and his instinct more extensive, than that of the cat; for he hunts and eats with equal avidity, birds, quadrupeds, serpents, lizards, insects, and, in general, every animated being. His courage is equal to the vehemence of his appetite. He dreads neither the rage of the dog nor the malice of the cat. He is not afraid even of the bite of serpents, which he pursues and kills; and, when he begins to feel the effects

ICHNEUMON. — *Penn. Hist. Quadr.* ii. p. 54. — *Shaw's Gen. Zool.* i. p. 379, pl. 92.

HABITAT

in India atque in Ægypto in campis et ad ripas Nili, inundationis tempore in hortis et juxta pagos.

Varietas indica minor glauca.

W.

Ichneumon weesel, with bright flame-coloured eyes, small rounded ears, almost naked, nose long and slender, and the body thicker than that of others of this genus. The tail is very thick at the base, tapering to a point. The legs are short; and the hair is hard and coarse. The colour varies in different animals from different countries; in some it is alternately barred with dull yellowish-brown and white; in others, pale brown and mouse-coloured; so that the animal appears mottled. The throat and belly are of a uniform brown. Beneath the tail is an orifice, not unlike that of a badger. It differs in size, from twenty-four to forty-two inches in length, from the tip of the nose to the end of the tail. — *Penn. Synops. Quadr.* p. 226.

* Mihi ichneumon fuit utilissimus ad mures ex meo cubiculo fugandos unum alui à quo murium damna plane cesarunt, siquidem quotquot offendebat interimebat, longèque ad hos necandos fugandosque fele est ichneumon utilior — *Prosp. Alp. Descript. Egypt.* lib. iv. p. 235.

of their poison, he goes in quest of an antidote, and particularly of a root *, which the Indians call by his name, and allege that it is one of the most powerful and certain remedies against the bite of the viper or asp. He eats the eggs of the crocodile, as well as those of hens and other birds. He likewise kills and eats the young crocodiles †,

* *Primum antidotum. . . . radix est plantæ Malaice Ham-paddu-Tanah, id est l'el terra dicta à sapore amarissimo. . . . Lusitanis ibidem Raja seu radix mungo appellata à mustela quadam seu viçerra Indis mungustia appellata, quæ radicem monstrasse, et ejus usum prima prodidisse creditur. . . . Indi igitur. . . . præcipue qui Sumatram et Javam incolunt, sive usum à mustela edocti sint, sive casu quodam invenerint radicem pro explorato habent antidoto. — Koempfer, *Amarit.* p. 574. In India, there is a root which produces neither trunk, branches, nor leaves. It is called *chiri*, a name derived from that of the animal, which alone knows where to find this root: The animal is as large as a martin, which it also resembles in figure, except that it is more corpulent. It is of a dusky colour, and the hair is hard, crooked, and bristly, like that of the wild boar, but not so long. The tail is fleshy and smooth, like that of the martin. This animal has a remarkable antipathy to serpents, for which he perpetually lies in ambush. . . . The hunters tell us, that, when bit by a serpent, he goes in quest of the root mentioned above, either to cure, or to preserve himself against the effects of the poison. . . . This root is regarded as the best antidote which India produces. — *Voyage de P. Vincent Maric.**

† The ichneumon, or rat of Pharaoh, is a small kind of wild hog. It is a beautiful animal, easily tamed, and its hair is bristly, like that of the porcupine. It is an enemy to all other rats, and has a particular antipathy to the crocodile, whose eggs it devours, and boldly attacks the young, by seizing them by the tail instead of the head. — *Descript. de l'Egypte, par Maillet*, p. 34.

though they are very strong soon after they issue from the egg; and, as fable is always a concomitant of truth, it has been alleged, that, in consequence of this antipathy to the crocodile, the ichneumon enters into his body while asleep, and never leaves him till his bowels are entirely devoured.

Naturalists have imagined that there are different species of ichneumons, because they vary in size and colour. But, if we consider that they are often reared in houses, and must, like other domestic animals, undergo changes, we shall be easily persuaded, that the diversities in colour and size are only simple varieties, and are not sufficient to constitute distinct species; especially as, in two ichneumons which I saw alive, and in several stuffed skins, I examined the intermediate shades both of colour and size, and remarked, that not one of them differed from the others by any evident and constant character. It only appears, that, in Egypt, where the ichneumons are in a manner domestic, they are larger than in India, where they are wild.*

* This ichneumon, says Edwards, came from the East Indies, and was very small. I saw another which came from Egypt, and was more than double the size. . . . Beside the size, the only other difference between these two ichneumons was, that the Egyptian kind had a small tuft at the extremity of the tail, while that of the Indian kind terminated in a point. I believe they are two distinct species; because that of India, which was comparatively so small, had acquired its full growth. — *Edwards*, p. 199. *Nota*, These differences are not sufficient to constitute two species, especially as between the largest and smallest, that is, from thirteen to twenty-two

The nomenclators, who perpetually blunder with regard to species, have differed widely as to the ichneumon. Linnæus first made it a badger, and afterwards a ferret. Hasselquist, following the lessons of his master, likewise made it a badger. Klein and Brisson have placed it among the weesels. Others have made it an otter, and others a rat *. I mention these notions for the sole purpose of showing the inconsistencies and contradictions that arise from what are called *generic names*, which are generally false, arbitrary, and equivocal †.

inches in length, there are intermediate sizes of fifteen and sixteen inches. Seba, who has given a figure and description (vol. i. p. 66, tab. 41,) of one of these small ichneumons, which he had alive, and was brought from Ceylon, remarks, that it was very mischievous, and could not be tamed. This difference of disposition might indicate a difference of species. But it has so perfect a resemblance to those we have already mentioned, that it is unquestionably the same animal. Besides, I saw one of these small ichneumons, which was so tame, that its master (M. le President de Robien) carried it always in his hat, and exhibited to the whole world the mildness and good nature of this animal.

* Cuvier, in his *Tableau elementaire de l'Histoire Naturelle des Animaux*, has placed the ichneumon among the bears; that is, among the animals that have five, nearly equal, toes, armed with curved and pointed nails; and which have six cutting teeth, and two canine, in each jaw. W.

† Hasselquist finishes his long, dry, and uninteresting description of the ichneumon with these words: "Galli in Egypto conversantes, qui omnibus rebus quas non cognoscunt, sua imponunt nomina ficta, appellarunt hoc animal *rat de Pharaon*. Quod sequenti qui Latine relationes de Egypto dederunt *Alpin*, *Belon*, murem Pharaonis effuxerunt." If this man had read Belon and Alpinus, whom he quotes, he would

The ichneumon loves the banks of rivers. During inundations, he retires to the high grounds, and often approaches the habitations

have perceived that it was not the French who gave the appellation of *Pharaoh's rat* to the ichneumon, but the Egyptians themselves, and would not, on that account, have taken occasion to revile our nation. But it is not surprising to find petulance and pedantry in the works of a schoolboy. In a word, his descriptions of the ichneumon, of the camelopard, and of some other animals, can never serve any other purpose than to mislead those who take the disagreeable and irksome trouble of reading them: 1. Because they are unaccompanied with figures, which a multitude of ill chosen words can never supply: 2. Because these words are mostly barbarous Latin, or rather no language whatever: 3. Because the method observed in descriptions of this kind, is only a rote, which every man can follow, and requires neither genius nor knowledge: 4. Because, by the minuteness of the description, the remarkable and distinctive characters of the animal described are confounded with the more obscure, unimportant, and equivocal marks: 5. In fine, because the numerous relations and precarious combinations with which we are obliged to load the memory, render the labour of the reader greater than that of the author, and leave both as ignorant as they were before. What proves that, in notes of this nature, neither reading nor knowledge are necessary, is, 1. The false imputation thrown on the French nation with regard to *Pharaoh's rat*: 2. The blunder he commits in ascribing to this animal the Arabian name *neus*, which signifies the ferret, and not the ichneumon. To avoid this error, an acquaintance with the Arabic language was unnecessary; it was enough to have read the travels of those who had gone before him in the same country: 3. The omission of essential characters, while he enlarges without measure upon those which are indifferent. He describes, for example, the camelopard as minutely as the ichneumon; but he omits the most important character, namely, whether the horns are permanent, or fall off annually: among a thousand useless words, we find not

of men in quest of prey. In walking, he makes no noise, and varies his gait according to circumstances. Sometimes he carries his head high, contracts his body, and raises himself on his limbs. At other times he has the air of creeping and of lengthening his body like a serpent. He often sits on his hind-legs; and still more frequently darts like an arrow on his prey. His eyes are vivacious and full of fire. His aspect is beautiful, his body very agile, his limbs short, his tail thick and very long, and his hair rude, and often curled. Both male* and female*, independent of the natural passages, have a remarkable aperture, a kind of pouch, in which an odoriferous liquor is secreted. The ichneumon is said to open this pouch in order to refresh himself when too warm. His sharp muzzle and

the one which is most necessary: and, from his description, we cannot discover whether the camelopard belongs to the stag or ox kind. But we have dwelt too long on a criticism which every man of sense must make, when works of this nature fall into his hands.

* The inhabitants of Alexandria rear an animal called *ichneumon*, which is a native of Egypt. They tame and keep it in their houses, like a cat or dog. The vulgar call it the *rat of Pharaoh*. The peasants bring these animals, when young, to Alexandria, where they are kept in the houses, on account of their hunting rats, serpents, &c. This animal is very cunning in watching its prey. . . . He feeds indifferently on all living creatures, as beetles, lizards, cancleons, all kinds of serpents, frogs, rats, and mice. He is fond of birds and poultry. When provoked, he erects his hair. . . . He has a peculiar mark, a large aperture surrounded with hair, near the anus, resembling the female organ, which he opens when too warm. — *Bclon, Obs.* p. 95.

narrow mouth prevent him from seizing large objects. But the defects of his weapons and strength, he supplies by agility and courage. He easily worries a cat, though larger and stronger than himself. He often combats with dogs, and, however large they may be, he makes them respect him.

This animal grows quickly, and lives but a short time*. They are numerous in all the southern regions of Asia †, from Egypt to Java; and they appear to exist in Africa, as far as the Cape of Good Hope ‡. But they cannot be

* Feles et ichneumon tot numero pariunt quot canes, vescunturque eisdem, vivunt circiter annos sex. — *Arist. Hist. Anim.* lib. vi. cap. 35.

† Mungos alunt rura calentis Asiæ omnis, usque ad Gangem, etiam in iis regionibus in quibus radix mungo nunquam germinavit. — *Koempf. Amœnit.* p. 574. The ichneumon is a small beautiful animal, shaped nearly like our French weasels . . . but of a colour incomparably finer. . . . The white and black predominate; and there is a kind of red, which constitutes the shade between the two. The hair of the tail is of the same colour, but longer than that of the body. The head is covered with short smooth hair. Its eyes are large, and its ears short and rounded. This ichneumon was two feet and a half long from the nose to the extremity of the tail. . . . It was brought from the kingdom of Calicut to France, in a vessel belonging to our squadron. It lived five months in Paris, and became very familiar. — *Curiosit. de la Nat. et de l'Art*, p. 211.

‡ The ichneumon is of the size of a cat, and shaped like a shrew-mouse. . . . Its whole body is covered with long stiff hair, variegated with black, white, and yellow. This animal, which is common in the fields of the Cape, is a great destroyer of serpents and birds. — *Descript. du Cap de Bonne Esperance*, par Kolbe, tom. iii. ch. 5.

easily reared, or preserved in our temperate climates. Whatever care be taken of them, the wind incommodes, and the frost kills them. To avoid both, and preserve their heat, they roll themselves up, and conceal their head between their thighs. The ichneumon has a small soft voice, a kind of murmur, and its cry never becomes sharp unless when struck or irritated. This animal was held in great veneration among the ancient Egyptians, and still merits protection, on account of the number of noxious animals which it destroys, and particularly the crocodiles, whose eggs it knows how to find, though concealed in the sand. The crocodiles lay such a number of eggs *, that their multiplication would be extremely formidable, if the ichneumon did not destroy them.

We here give the figure of an animal which was transmitted to us from the eastern parts of Africa, under the denomination of *nims*. From its figure, as well as its name, I know it to be a species of ferret; for *ncms*, or *nims*, is the name

* The ichneumon is of great service to Egypt, because he destroys the crocodile's eggs, wherever he can meet with them. It was for this reason that the ancient Egyptians performed a kind of religious adoration to him. — *Voyage de Paul Lucas*, tom. iii. p. 203. The ancient Egyptians justly revered the ichneumon, or rat of Pharaoh. It is said, that, out of four hundred eggs, which the female crocodile lays at a time, to save a few of them from the fury of this mortal enemy, she is obliged to transport them to some small islands, after the retiring of the Nile. — *Descript. de l'Egypte, par Maillet*, tom. ii. p. 129.

of the ferret in the Arabic language. These Arabian ferrets, or *nems*, have a greater resemblance to the vansire than to our European ferrets. M. de Sève gives the following description of the *nems*:

“ The *nems*, from his figure and flexibility, is a genuine ferret. When he walks, he lengthens his body, and appears to have very short legs. The individual under consideration was a male, and about thirteen inches and a half long from the muzzle to the anus, and the length of the tail was one foot. The fore part of the body is five inches and a half high, and the hind part six inches and a half. The ears are naked, and of the same figure with those of the common ferret. The eye is vivacious, and the colour of the iris a deep yellow. The muzzle, which is very sharp, appeared not to have any whiskers. The whole body is covered with long hair, which is a mixture of dark brown and a dirty white, and gives it a resemblance to the silvery rabbit. The hair on the belly is of a bright yellow colour, without any mixture. The ground colour on the head, and round the eyes, is clear and yellowish: on the nose, cheeks, and other parts of the face, where the hair is short, a tincture of brown, more or less deep, prevails without mixture, and gradually loses itself above the eyes. The legs are covered with short hair, of a deep yellow colour. On the paws there are four toes, and a small one behind. The claws are small and black. The tail, which is more than double the length of that



At Bell's engraving!

NEMS.

stinct would carry him against a being with which he was hitherto totally unacquainted. His first emotion seemed to be astonishment, mixed with anger, for his hair became erect; but, in an instant after, he slipped behind the reptile, and, with a remarkable swiftness and agility, leaped upon its head, seized it, and crushed it between his teeth. This essay, and new aliment, seemed to have awakened in him his innate and destructive voracity, which till then had given way to the gentleness he had acquired from his education. He had been brought up with several curious fowls, which, till then, he had suffered to go and come twenty times unmolested and unregarded; but, a few days after, when he found himself alone, he strangled them all, ate a little, and sucked the blood of two *.

The natural inclination of the ichneumon for eggs, is the reason why it hunts in the sand for those of the crocodile; and thus instinctively becomes one of the most powerful preventives to the multiplication of that destructive animal. This disposition in the ichneumon has given rise to the notion that the little animal slips down the throat of the crocodile and feeds upon his entrails. There is an observation in Sonnini's edition of Buffon, which proves that the ichneumon is not created merely as a scourge to the crocodile (an opinion which, by the way, has often been alleged), but that, in destroying the crocodile's eggs and young, it only follows its natural appetite. In the major part of northern Egypt, *viz.*, that which is comprised between the Mediterranean sea and the town of Siout, ichneumons are very common, while they are less frequently met with in Upper Egypt, where crocodiles, in their turn, abound. They are no where more numerous than in Lower Egypt, where they meet with plenty of nourishment, and Sonnini asserts that crocodiles never appear in that part of Africa.

The ichneumon was so highly esteemed by the ancient Egyptians for its utility, that they regarded it as a sort of deity: according to Herodotus, whenever one of these ani-

* *Essais Philosophiques sur les mœurs de divers Animaux étrangers*, p. 86.

mals happened to die, it was buried in a consecrated chest. The ichneumon is represented on the left side of the Palestine pavement, fighting with a serpent. Its figure occurs also on the base of the statue of the Nile, and on several of the Egyptian medals.

Buffon has noticed an animal by the name of *nems*, which is nothing more than the mangouste or ichneumon, *nems* being the Egyptian name for the ichneumon, or that by which it is called in the eastern part of Africa.

THE FOSSANE*.

BY some travellers the fossane is called the *genet of Madagascar*, because it resembles the genet in colour, and some other articles. But it is constantly smaller, and has not the odoriferous

* CHARACTER SPECIFICUS.

VIVERRA FOSSA. V. cauda annulata, corpore cinereo nigro maculato. — *Linn. Syst. Nat. Gmel.* i. p. 91. — *Erxleb. Mamm.* p. 498. — *Schreb.* iii. pl. 114.

FOSSANA. — *Aless. Quadr.* iv. pl. 159, fig. 1.

FOSSA. — *Flacourt. Madag.* p. 152.

LA FOSSANE. — *Buff. Hist. Nat. par Sonn.* xxxiii. pl. 1, fig. 1.

FOSSANE WEESEL. — *Penn. Hist. Quadr.* ii. p. 75, pl. 66. A. — *Shaw's Gen. Zool.* i. p. 402, pl. 96.

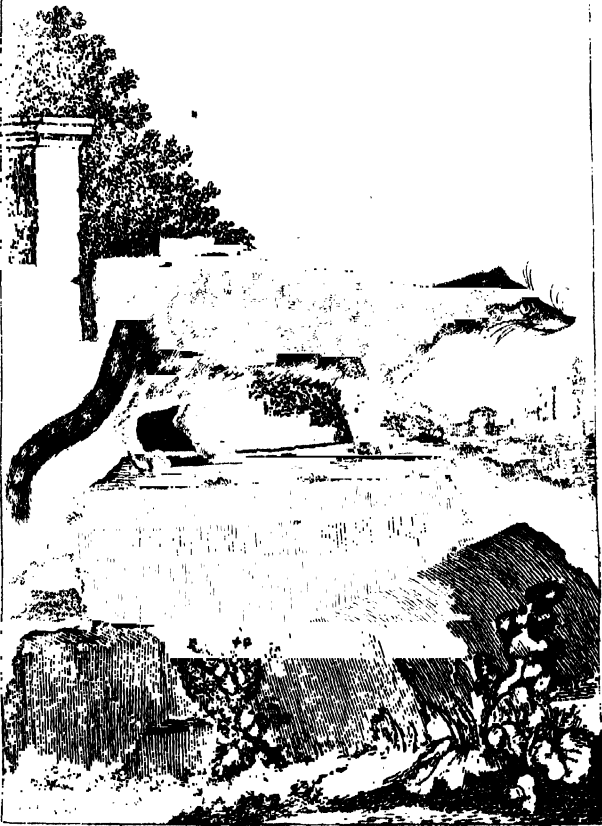
HABITAT

in Madagascar, Guinea, Cochinchina, Philippinis insulis.

W

Fossane weesel, with a slender body, rounded ears, and black eyes. The body and legs are covered with cinereous hair, mixed with tawny. The sides of the face are black. From the hind part of the head, towards the back and shoulders, four black lines extend. The shoulders, sides, and thighs, are black, and the tail is annulated with black. — *Pennant's Synops. of Quad.* p. 237.

Fossa, or *Fossane*, the name of this animal at Madagascar: which we have adopted.



FOS SANE.

pouch, which is an essential character of the genet. As we were uncertain as to this fact, we wrote to M. Poivre, who had sent us a stuffed skin, and who obliged us with the following answers: "Lyon, July 19, 1761.—The fossane which I brought from Madagascar had the manners of our martin. The inhabitants of the island assured me, that the genitals of the male, when in season, had a strong odour of musk. When the skin was stuffed at the royal garden, I examined it attentively, and could perceive no pouch or smell of musk. I reared a similar animal in Cochinchina, and another in the Philippine islands. Both of them were males, and they became a little familiar. They were very young, and I kept them only two or three months. I found no pouch in the part you mentioned; and I only perceived that their excrements had an odour similar to those of our martin. They ate flesh and fruits; but they preferred the latter, and showed a decided taste for bananas, upon which they sprung with avidity. This animal is very wild, and difficult to tame. Though taken when young, his air and character were always ferocious, which seemed to be uncommon in an animal that feeds spontaneously on fruits. The eye of the fossane is a large black globe, which gives it a mischievous aspect."

We rejoice in this opportunity of expressing our gratitude to M. Poivre, who, from his attachment to natural history, and his friendship to those who cultivate that science, has adorned

the royal cabinet with a great number of rare and valuable articles.

It appears to us, that the animal called *berbé* in Guinea, is the same with the fossane, and, consequently, that this species exists in Africa as well as in Asia. “The *berbé* has a sharper muzzle and a smaller body than the cat; and is spotted like the civet*.” We have no animal to which these characters apply so well as to the fossane*.

* Voyage en Guinée, par Bosman, p. 256.



VANSIRE.

THE VANSIRE

THOSE who mention this animal have taken it for a ferret, to which it has a great resemblance. But it differs from the ferret by such characters

* CHARACTER SPECIFICUS.

MUSTILA GALERA. M. tota fusca, pedibus fissis. — *Linn. Syst. Nat. Gmel.* i. p. 95. — *Erxleb. Mamm.* p. 153.

Galera subfusca, cauda elongata, oculis nigris, auribus subnudis appressis. — *Brown, Jam.* p. 485, pl. 29, fig. 1, bona.

LA VANSIRE. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 4, pl. 1, fig. 2.

LL TAYRA, OU LE GALERA. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 8.

MADAGASCAR WEESLE — *Penn. Hist. Quadr.* ii. p. 51.

GUINIA WEESEL. — *Penn. Hist. Quadr.* ii. p. 53.

GALERA. — *Shaw's Gen. Zool.* i. p. 428.

HABITAT

in Guinea et Madagascar; fodit subterranea.

The Madagascar weesel with short ears. The hair on the whole body and tail is brown at the roots, and barred above with black and ferruginous. The length, from nose to tail, is about fourteen inches; and that of the tail, to the tip of the hairs at the end, near ten. — *Penn. Synops. Quadr.* p. 224.

Vansire, derived from *rohanshira*, the name of this animal in Madagascar. The province of Balta, in the kingdom of Congo, furnishes an infinity of fine sables, called there *insire*. — *Hist. Gen. des Voyages*, tom v. p. 87. *Nota*, There are no

as justify us in considering it as a distinct species. The vansire has twelve grinding teeth in the upper jaw, and the ferret only eight; and, though each of these animals has ten grinders in the under jaw, they neither resemble one another in figure nor situation. Besides, the colour of the vansire differs from that of all other ferrets; though these last, like all domestic animals, vary so much from each other in colour, that even the male differs from the female.

To us it appears, that the animal mentioned by Seba*, under the denomination of the *Java weesel*, called by the natives *Koger-angan*, and afterwards, by Brisson†, the *ferret of Java*, may be the same animal with the vansire; at least, it makes a nearer approach to the vansire than any other animal. But Seba's description is not sufficiently complete to enable us to form an explicit judgment. His description we have added in the notes‡ that the reader may compare it with ours.

sables in Congo; and the similarity of the name leads us to think that the *insire* of Congo may be the *vansire* of Madagascar.

* *Mustela Javanica*: ab incolis Javæ *Koger-angan* vocatur.—*Seba*, vol. i. p. 77, tab. 48, fig. 4.

† *Mustela supra rufa, infra diluta flavæ, cauda apice nigricante*. . . . *Viverra Javanica*. Le furet de Java.—*Brisson*. *Regn. Anim.* p. 245.

‡ *Javanica hæc mustela, hic repræsentata, collo et corpore est brevioribus quam nostras; caput tegentes pili obscure spadicei sunt, rufi, qui dorsum, dilute vero flavi qui ventrem vestiunt, cauda interim in apicem acutum et nigricantem desinente*.—*Seba*, vol. i. p. 78.

Mr. Forster communicated to me the following remarks on the vansire.

“ I have seen,” says he, “ an animal of the mangouste kind, in the menagery of the Cape of Good Hope, which came from the island of Madagascar, exactly corresponding with the description of the vansire, given by M. de Buffon. It was delighted to be in a tub full of water, which it left every now and then. The keeper of the menagery assured us that when this animal was detained for some time out of the water, it eagerly plunged in again as soon as it was set at liberty. The figure which M. de Buffon has given is correct enough, but it appears rather too long, because it was done from a stuffed skin: besides, the hair is shorter than that of the vansire in the Cape menagery. This last was nearly the size of a common martin: its tail was as long as its body: its hair was of a blackish brown colour: it had five toes on each foot, deeply divided, and without membranes. It had six cutting teeth both above and below, and eight grinders in each jaw, *viz.* four on each side; the canine teeth were insulated, which make in all thirty-two teeth. The animal walks like the mangouste, resting upon the heel.”

THE TAYRA, GALERA, OR GUINEA WEESEL * †.

THIS animal, of which Mr. Brown has given a figure and description, is of the size of a small rabbit, and has a considerable resemblance to the weasel or martin. He digs an habitation in the earth, and has great strength in his fore-feet, which are much shorter than those behind. His muzzle is long, a little sharp, and garnished with whiskers. The under jaw is much shorter than the upper. He has six cutting and two canine teeth in each jaw, without reckoning the grinders. His tongue is rough, like that of the cat. His

* In the preceding edition, this animal stands at p. 265 of the eighth volume, amongst those quadrupeds with which the count was but slightly acquainted. It is now removed to its present situation, because both Erxleben and Gmelin consider it the same as the *vansire*.

H.

† Guinea weasel, with the upper jaw much longer than the lower; eyes placed midway between the ears and tip of the nose; ears like the human; tongue rough; tail declining downwards, lessening towards the point; feet strong, and formed for digging; shape of the body like that of the rat; size of a small rabbit; of a dusky colour; the hair rough. — *Penn. Synops. Quad.* p. 225.

head is oblong, as well as the eyes, which last are placed at an equal distance between the ears and the point of the muzzle. His ears are flat, and resemble those of man. His feet are strong, and adapted for digging. The metatarsal bones are long; and he has five toes on all his feet. His tail is long, and tapers to a point. His body is oblong, and has a great resemblance to that of a large rat. He is covered with brown hairs, some of which are longer than others. This animal appears to be a small species of martin or polecat. Linnæus imagined, that the black weasel of Brasil might be the *galera* of Mr. Brown; and, indeed, the two descriptions afford some reason for the conjecture*. Besides, this black weasel of Brasil is likewise found in Guiana, where it is called *tayra*†; and I suspect

* *Mustela atra collo subtus macula alba triloba. Habitat, in Brasilia. Holmens. Confer. Brown's Jam. p. 458, tab. 49, fig. 1. Galera, statura martis, at nigra, pilis rigidioribus, auriculæ rotundæ villosæ. Area ante oculos cinerascens, maculæ sub medio collo non vero sub gula. Mammarum pone umbilicum quatuor.——Nota, Mr. Brown says, that he saw only two paps on the lower part of the belly; but the other two might escape his observation. He also says, that the galera is found in Guinea, and the black weasel in Brasil. But this assertion ought not to stumble us; for it happens daily, that Brazilian animals are first transported to Guinea, and afterwards pass for animals belonging to that country; and *vice versa*. I agree, therefore, with Linnæus, in thinking that the galera of Mr. Brown is the same animal with the black weasel of Brasil.*

† *Mustela maxima atra, moschum redolens. Tayra. Grosse*

102 THE TAYRA, GALERA, &c.

that the word *galera* is a corruption derived from *tayra*, which is the true name of this animal.

belette. This animal, by rubbing itself against trees, leaves a kind of unctuous humour, which has a strong odour of musk.
—Barrère, *Franc. Equin.* p. 155.

THE PEROUASCA*.

RUSSIA and Poland furnish another animal. In the language of the former country it is called *perewiazka*, and in that of the latter *prze-*

* CHARACTER SPECIFICUS.

MUSTELA SARMATICA. *M. pedibus fissis, corpore supra ex luteo fuscoque varia.* — *Linn. Syst. Nat. Gmel. i. p. 97.* — *Erxleb. Mamm. p. 460.* — *Schreb. iii. pl. 132.*

Mustela peregusina, pedibus fissis, capite et corpore subtus aterrimis, corpore supra brunneo luteoque vario, ore fascia frontali auriculisque albis, — *Guldenst. Nov. Comm. Petrop. xiv. p. 441—445, pl. 10.*

Mustela præcincta et Perewiaska. — *Rzaczynski Hist. Nat. Pol. p. 222, 328.*

LE PEROUASCA. — *Buff. Hist. Nat. par Sonn. xxxiii. p. 16.*

SARMATIAN WEESEL. — *Penn. Hist. Quadr. ii. p. 38.* — *Shaw's Gen. Zool. i. p. 430.*

HABITAT

in Polonia, præsertim Volhynia, et desertis inter Wolgam et Taniam sitis. Noctu præsertim vagatur, interdum latitans in cavernis ab aliis animalibus effossis, quamvis et ipsa fodiat.

W.

Weesel with broad, short, round ears, edged with long white hairs: mouth surrounded with white: head, feet, and under side of the body, of a full black: head crossed beyond each eye with a white band, passing beneath the ears, along the sides of the neck, and down to the throat: from the hind

wiaska, or *girdled weasel*. It is smaller than the polecat, and covered with whitish hair, rayed transversely with several bands of yellowish red. It lives in the woods, and burrows in the ground. Its skin is a beautiful fur.

part of the head, another of yellow passes on each side obliquely towards the shoulders; above is a third: the upper part of the body is of a brownish black, striped and spotted irregularly with obscure yellow: tail dusky, full of hairs, intermixed with white ones longer than the rest: the end wholly black. Length, from the tip of the nose, about fourteen inches; of the tail six. — *Penn. Hist. Quadr.* ii. p. 38.

This little quadruped feeds principally on the marmots and rats which inhabit the immense plains of the Russian empire. Pennant says that when it seizes its prey, it first sucks out the blood: it lives usually in holes made by other beasts, but is not without the power of burrowing. It preys by night; sleeps little, and is very fierce and untameable: its eyes are flaming, and its smell fœtid; especially when it erects its tail, which it does in anger: it is very active, and moves by frequent jumps. It is in season in the spring, and, according to the natives, goes two months, and brings four or eight young at a time.



TOUAN.

THE TOUAN*,

WE have here figured a little animal which was sent us from Cayenne by M. de la Borde, under the name of *touan*, and which we can refer only to the weasel genus. In the short notice left us by M. de la Borde, it is merely said that it was an adult; that it lived in the trunks of trees, and that it fed on worms and insects. The female produces two young at a time, which it carries on its back. This adult touan was but five inches and three quarters long, from the end of the snout to the origin of the tail: it is smaller than the European weasel, which is commonly six inches and a half long; but it resembles it in the shape of its head, in the length

CHARACTER SPECIFICUS.

VIVERRA TOUAN. V. ferruginea, subtus alba, cauda .
versus apicem nuda. — *Shaw's Gen. Zool.* i. p. 432.

LE TOUAN. — *Buff. Hist. Nat. par Sonn.* xxxviii. 30,
pl.

TOUAN. — *Penn. Hist. Quadr.* ii. p. 31.

HABITAT.

in Cayenne.

W.

of its body, the shortness of its legs, and in the colour of its hair: the head is but an inch long; the tail is two inches and three lines, whilst the tail of our European weasel is only fifteen lines, and is not, like that of the touan, thick at the base, and very small at the tip. The touan has five toes, armed with nails, to each foot: the top of the muzzle, the head, and the body, almost to the tail, is covered with blackish hair; the flanks are of a bright red; the under part of the neck and the belly, are of a fine white: the sides of the head, as well as the upper part of the legs, are of a duller red than the flanks: one third of the tail, from its origin, is covered with hair like that on the legs; the rest is bare: the inside of the legs is white, like the belly: all the hair of this little animal is soft to the touch.



MAURICIO.

THE MAKIS*, OR MAUCAUCOS.

AS the name *maki* has been given to several animals, we could only employ it as a generic term, under which we shall comprehend three animals of the same genus, but of distinct species. These three animals have long tails, and feet like those of the monkey ; but their muzzle is long, like that of the martin, and they have six cutting teeth in the under jaw, while the monkeys have only four. The first of these animals is the mococo or maucauco, commonly known by the name of the ring-tailed *maki*. The second is the mongous, commonly called

* LEMUR.

CHARACTER GENERICUS.

Dentes primores superiores quatuor : intermediis remotis. Inferiores sex : longiores, porrecti, compressi, paralleli, approximati.

Ianuarii solitarii, approximati.

Molares plures sublobati : antichi longiores, acutiores.

IV.

The word *maki* seems to be derived from *mocock* or *maucauc*, which is the name of those animals in Mozambique, and in the islands adjacent to Madagascar.

the *brown maki*. But this denomination is improper; for some individuals are all brown, and others have their cheeks black, and their feet yellow. The third is the *vari*, by some called the *pied maki*. But this denomination is ill applied; for, besides the pied variety, some individuals are entirely black, and others entirely white. These animals are all natives of the eastern regions of Africa, and particularly of Madagascar, where they are very numerous.

The maucauco* is a beautiful animal. His

* CHARACTER SPECIFICUS.

LEMUR CATTÀ. L. caudatus, cauda albo nigroque annulata. — *Linn. Syst. Nat. Gmel.* i. p. 43. — *Erxleb. Mamm.* p. 68. — *Schreb.* i. p. 143, pl. 41.

PROSIMIA CINEREA, cauda cincta annulis alternatim albis et nigris. — *Briss. Quadr.* p. 222, No. 4.

Simia-sciurus Madagascariensis sive Maucaco. — *Edw. Az.* pl. 197.

LE Mococo. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 36, pl. 2.

RING-TAILED MAUCAUCO. — *Penn. Hist. Quadr.* i. p. 230.

RING-TAILED LEMUR. — *Shaw's Gen. Zool.* i. p. 103, pl. 35.

HABITAT

in Madagascar et proximis insulis, gregarius.

W.

Ring-tailed maucauco with the end of the nose black, erect ears, white face, and black circles round the orbits. The hair on the top and hind part of the head is of a deep ash-colour; the back and sides are of a reddish ash-colour; the outsides of the limbs are paler; and the belly and insides of the limbs are white. All its hair is very soft, close, fine, and erect, like velvet. The tail is twice the length of the body, and marked

aspect is agreeable, his figure elegant, and his hair always neat and glossy. He is remarkable for the largeness of his eyes, the height of his hind-legs, which are much longer than those before, and his large and handsome tail, which is always erect, always in motion, and garnished with thirty alternate rings of black and white, well marked, and separated from each other. His manners are gentle, and, though he has a great resemblance to the monkeys, he possesses none of their malicious dispositions. In a state of liberty, the maucaucos live in society, and they are found in Madagascar in troops of thirty or forty*. In a domestic state, the prodigious rapidity of their movements renders them inconvenient: it is for this reason alone that they are generally chained; for, though extremely active and vivacious, they are neither mischievous nor ferocious. They tame to such a degree as to go out and return, without any danger of running off. Their gait is oblique, like that of all animals which have hands instead of feet. The maucauco leaps more gracefully than he walks. He is a silent animal, uttering only a short acute

with numbers of regular rings of black and white; and, when sitting, it is twisted round the body, and brought over its head. The nails are flat, particularly those of the thumbs of the hind-feet. The inside of the hands and feet is black. It is of the size of a cat. — *Pennant's Synops. of Quad.* p. 137.

* The *varis*, whose tails are barred with black and white, go in troops of thirty, forty, or fifty: they resemble the *varicossis*. — *Voyage de Flacourt*, p. 154.

cry when surprised or irritated. He sleeps in a sitting posture, with his muzzle resting on his breast. His body is not thicker than that of a cat, but it is longer; and the height of his legs gives him the appearance of being larger than he really is. His hair, though very soft to the touch, stands always erect. In the male maucauco, the organs of generation are small and concealed; but those of the mongous, or woolly maucauco, are disproportionally large, and very apparent.

The maucaucos, or makis maucaucos, are handsomer and better made than the mongous: they are also tamer, and appear more sensible. Like monkeys, they are very lascivious. They are very gentle, and even caressing, and some observers have remarked that they have naturally a singular habit of putting themselves into an attitude of admiration or pleasure when in the sunshine. They sit down, say they, and stretch out their arms, while they observe this luminary; several times a day they repeat this sort of profession, which occupies them for whole hours, for they turn themselves towards the sun, according as it rises or declines.

“ I kept one,” says M. Sonnini de Mannoncourt, “ for a considerable time at Cayenne, to which place it had been brought by a vessel from the Moluccas: what determined me to purchase it, was its steadiness in keeping its situation before the sun. It was on the poop of the vessel, and, for an hour at a time, I observed it con-



MONGOU.

stantly extending its arms towards the sun, and they assured me that it did the same in the East Indies."

"It appears to me," observes M. Sonnini de Mannoncourt, "that this habit originates from these animals being very chilly. The mongous that I kept for some years in Bourgogne, always seated itself very near the fire, and stretched out its arms towards it, to heat them: thus I conceive that the habit of displaying their arms, either before the fire or the sun, is common to these two species of makis."

The mongous is smaller than the maucauco *;

* CHARACTER SPECIFICUS.

LEMUR MONGOZ. *L. caudatus griseus, cauda unicolore.* — *Linn. Syst. Nat. Gmel.* i. p. 42. — *Schreb.* i. pl. 39. B. — *Erxleb. Mamm.* p. 66.

PROSIMIA FUSCA, naso, gutture, et pedibus albis. — *Briss. Regn. An.* p. 221.

Simia-sciurus lanuginosus fuscus ex Johannæ insula. — *Petiver Gazoph.* tab. 17, fig. 5. Mediocris.

LE MONGOUS. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 40, pl. 3.

MONGOOZ. — *Edw.* v. p. 12, pl. 216.

WOOLLY MAUCAUCO. — *Penn. Hist. Quadr.*

WOOLLY LEMUR. — *Shaw's Gen. Zool.* i. p. 96, pl. 33.

HABITAT

in Madagascar insulisque adjacentibus usque ad Celebes.

Variat pedibus albis vel fulvis; facieque tota fusca.

The woolly maucauco, with orange-coloured irides, short rounded ears, end of the nose black, eyes lodged in a circle of black, and the space between them of the same colour. The

his hair is likewise silky, pretty short, and somewhat curled. His nose is larger than that of the maucanco, and resembles that of the vari. I had a mongous in my possession for several years, which was altogether brown. It had yellow eyes, a black nose, and short ears. It amused itself with eating its own tail, and actually destroyed the last four or five vertebræ. This animal was extremely dirty, and so troublesome that we were obliged to chain him. Whenever he could make his escape, he went into the neighbouring shops in quest of fruits, sugar, and sweetmeats, and opened the boxes which contained them. It was difficult to seize him, and he bit cruelly even those with whom he was best acquainted. He uttered a low grunting noise, almost perpetually; and, when tired of being alone, he croaked like a frog, and so loud as to be heard at a great distance. This mongous was a male, and his testicles were extremely large in proportion to the size of his body. He was fond of the she-cats, and even satisfied his desires, without any intimate union: his embraces were, of course, ineffectual. He dreaded

rest of the nose and lower sides of the cheeks is white. When in full health, the whole upper part of the body is covered with long, soft, and thick fur, a little curled or waved, and of a deep brownish ash colour. The tail is very long, and covered with the same sort of hair, and of the same colour. The breast and belly are white, and the hands and feet naked and dusky. The nails are flat, except that of the inner toe of the hind-feet. It is of the size of a cat. The paws are sometimes white or yellow, and the face wholly brown. — *Pennant's Synops. of Zood.* p. 136.



GREAT MONGOU'S.

cold and moisture; he never departed from the fire, and stood on end to warm himself. He was fed with bread and fruits. His tongue was rough, like that of a cat; and, when permitted, he licked a person's hand till it was inflamed, and often finished this operation with a severe bite. The cold of the winter 1750 killed him, though he never quitted his station near the fire. His movements were extremely brisk, and sometimes petulant. He often slept during the day; but his slumbers were so light, that the smallest noise awaked him.

In this species there are several varieties, both in colour and size: the mongous, whose history has just now been given, was totally brown, and about the size of an ordinary cat. I saw one, which, though an adult, was not larger than the fat squirrel. If this small mongous had not perfectly resembled the large kind, except in size, it would unquestionably have been a distinct species. But, as we have no evidence that these two animals do not intermix, we must still regard them as the same species, till we acquire some new light as to their history and economy.

The maki-mongous which we have described was the size of a cat: this was one of the smallest; for that which I have figured (pl. 313) was at least one third larger, and this difference proceeded neither from age nor sex, for they were both males; and I kept the first for several years. Perhaps, then, it was merely an individual variety, for in other respects it so strongly resembled the other, that there was no doubt of its being the same species. The persons who

brought it to Paris called it *maki cochon*. It did not differ from the first, except in the hair of the tail, which was much less tufted, and more woolly, and in the shape of that extremity which tapered to the tip, instead of which the tail of the other mongous appears of an equal size throughout. There is also some difference in the colour of the hair, this being of a much clearer brown than the other; nevertheless, these slight differences do not appear to us sufficient to constitute two distinct species of these animals.

The vari*† is larger, stronger, and more fe-

* CHARACTER SPECIFICUS.

LEMUR MACACO. L. caudatus niger, collari barbato.—*Linn. Syst. Nat. Gmel.* i. p. 43. — *Schreb.* i. p. 142. pl. 40, A.

Lemur (Macaco) caudatus niger, collari barbato, cauda pilosa.—*Erxleb. Mamm.* p. 67.

Lemur cauda floccosa, corpore fusco.—*Gron. Zooph.* i. p. 5, No. 22.

PROSIMIA FUSCA.—*Briess. Quadr.* p. 220.

LE VARI.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 43, pl. 3.

BLACK MAUCAUCO.—*Edw. Glean.* i. p. 13, pl. 217.

RUFFED MAUCAUCO.—*Penn. Hist. Quadr.* i. p. 231.

RUFFED LEMUR.—*Shaw's Gen. Zool.* i. p. 93.

HABITAT

in Madagascar. S. Johanne et vicinis. W.

The ruffed maucauco, with orange-coloured irides, long hair round the sides of the head, standing out like a ruff, and a long tail. The colour of the whole animal is black, but not always, being sometimes white spotted with black; but the feet are black. It is rather larger than the ring-tailed species.—*Penn. Synops. Quadr.* p. 133.

† Flacourt, who calls the maucauco *vari*, gives the name of *varicossy* to this animal; which epithet, probably, denotes the greater size and ferocity of the animal, which likewise differs from the maucauco in several other articles.



VARI.

rocious than the maucauco. In a state of liberty, he is even dangerous. We are told by travellers, "That these animals are as furious as tigers; that they make such a noise in the woods, that, when only two of them are together, one would believe there were a hundred; and that it is difficult to tame them*." The voice of the vari has some resemblance to the roaring of a lion, and is tremendous to those who hear it for the first time. This astonishing strength of voice, in a middle-sized animal, depends on the singular structure of its windpipe, the two branches of which widen, and form a large cavity, before they enter the lungs. Hence he differs from the maucauco both in structure and dispositions. His hair, in general, is longer; and he has a kind of a ruff, or cravat, of still longer hair, which surrounds his neck, and forms a very distinct character, by which he is easily known. In colour, he varies from white to black, or pied; and his hair, though long and very soft, stands almost perpendicular to the skin. His muzzle is larger, and proportionally longer than that of the maucauco. His ears are much shorter, and fringed with long hairs. His eyes are of so deep an orange colour, that they appear to be red†.

* Voyage de Flacourt, p. 153. — When this animal is taken young, he apparently loses his ferocity, and seems to be as gentle as the maucauco. "It is an animal of a social, mild, and peaceable nature, and has neither the cunning nor the malice of the monkey." — *Edw. Glean.* p. 13.

† Sonnini mentions a variety of vari in the cabinet of natural history at Paris, which is quite black, except the ruff and

The maucauco, the mongous, and the vari, belong to the same country, and seem to be confined to Madagascar*, Mosambique, and the lands adjacent to these islands. They appear to be in the Old Continent what the opossums are in the New, which last, like the former, have four hands. With regard to figure, the makis seem to constitute the shade between the long-tailed monkeys and the digitated quadrupeds. Like the monkeys, they have four hands and a long tail; and, at the same time, their muzzle is long, like that of the fox or polecat. In manners, however, they have a greater resemblance to the monkeys; for, though they sometimes eat flesh, and likewise lie in wait for birds, they are more frugiverous than carnivorous, and prefer, even in a domestic state, fruits, roots, and bread, to flesh, either raw or roasted.

legs, which are white: there is also a transversal band of the same colour on the middle of the body. W.

* In the province of Melagasse in Madagascar, the different species of monkeys are extremely numerous. Some of them are brown, with woolly hair, and a long bushy tail, which they raise above their backs, and form a shade with it to protect themselves from the sun and rain. In this manner they sleep, like the squirrels, upon the branches of trees. Besides, they have round ears, and a muzzle like the martin. This species is not so troublesome and malicious as the other kinds. The antavarres have the same kind of hair with the former, and a white ruff round the neck. Some of them are entirely white, with a long muzzle. They are as large as the former, and grunt like hogs. — *Relat. de Madagascar, par F. Cauche*, p. 127. *Nota*, This passage plainly points out the mongous and vari; and it is upon this authority that I have said, that some varis are black, others pied, and others entirely white.



LITTLE GREY MACAUÇO.

THE LITTLE GRAY MAKIS*.

THIS pretty little animal was brought from Madagascar by M. Sonnerat. Its whole body, except the face, feet, and hands, is covered with a grayish woolly fur, thick and soft to the touch. Its tail is very long, and covered with fur similar to that of the body. It is much allied to the maucauco, both in its form and attitudes, as well as in the nimbleness of its motions; but the maucauco, stands higher on its legs. In both, the fore-legs are shorter than the hind.

The colour of this little makis is, as it were, marbled with pale tawny: the fur being mouse-gray at the roots, and pale tawny at the extremities. The fur on the upper part of the body is six lines long, and four on the under part. The whole under part is white from the lower jaw: but the white is a little mingled with yellowish and grayish on the belly and beneath the limbs. The head is very large in front, and the snout very pointed, which gives a great sharpness to the physiognomy of the animal: the

* Dr. Shaw describes this animal as a variety only of the *lemur laniger*. — *Linn. Syst. Nat. Gmel.*

forehead is straight; the eyes round and full; the ears are nine inches high, and seven broad; they differ from those of other maucaucos, which are large, and, as it were, flattened at the tips. Those of this little makis are large at the base and rounded at the ends: they are covered and edged with ash coloured hairs. The circumference of the eyes, the ears, and the sides of the cheeks, are of a clear ash colour, as well as the fore parts of the arms and legs. The length of this animal, measured in a straight line, is ten inches and three lines; but if measured according to the curvature of the body, one foot and two lines: the length of the head, from the tip of the nose to the hind part, is two inches and five lines. The interior toe is furnished with a sharp, crooked claw; the rest with nails: the toes are of unequal length. The tail is fifteen inches long, of an uniform thickness throughout its whole length, and covered with woolly hair of the same colour as the body: the hairs on the tip, where the tawny prevails, measure seven lines.



FLOCKY MAKIS.

ANOTHER KIND OF MAKIS.

I conceive that, to the little gray makis, we ought to add another species, which M. Sonnerat also brought from Madagascar, and which does not differ from the former, except in the tint and distribution of its colours.

It has, like the other makis, a soft and woolly hair, but more tufted, and united in flakes, which occasions its body to appear large and thick. The head is large and short; and the snout is not so long as in the vari, the mongoz, and the maucauco. The eyes are very large, and the eyelids edged with blackish. The forehead is large, and the ears short, and hid in the fur. The fore-legs are short in comparison with the hinder; which, when the animal walks, occasions the hind quarters to rise, as in the maucauco. The tail measures ten inches and six lines; it is covered with tufted hair, and is of an uniform thickness.

The length of this animal, from the nose to the origin of the tail, is eleven inches six lines. The length of its head from the tip of the nose to the occiput, two inches three lines. A great black patch, ending in a point upwards, covers the nose, the nostrils, and part of the upper jaw.

The feet are covered with tawny hair, tinged of an ash colour. The toes and nails are black; the great toe of the hind feet is large and thick, with a thin flat nail: this first toe is united to the second by a blackish membrane.

The general colour of this animal is brown and ash-tawny, of different shades, the hair being brown with tawny tips. The neck, beneath the throat, the breast, the belly, and inside of the legs, are of a dirty white, tinged with tawny. The brown predominates on the head, the back, and upper parts of the limbs, and the ash-tawny prevails on the sides of the body and limbs; the tawny tinge is deepest round the ears, as well as on the front of the arms and legs to the heel. All that part of the back nearest the tail is tinged with tawny, which becomes orange throughout the whole length of the tail*.

* The potto, described and figured in Bosman's account of Guinea, seems, in Sonnini's opinion, very strongly to resemble this species.



A. Bell Sculp.

MADAGASCAR RAT.

THE MADAGASCAR RAT, OR DWARF MAUCAUCO*.

IN the figure is represented a small animal from Madagascar, which was drawn alive, when in the possession of the countess of Marsan. It appeared to make a nearer approach to the species of the palm squirrel than to that of the rat; for I was assured that it frequented the palm-trees. I have not been able to procure farther

* CHARACTER SPECIFICUS.

LEMUR MURINUS. *L. caudatus cinereus, cauda ferruginea.*
— *Linn. Syst. Nat. Gmel. i. p. 44.* — *Miller, Cimelia, Physica, p. 25, pl. 13.*

LEMUR PUSILLUS. *L. caudatus griseus.* — *Le Maki Nain Audeb. Hist. Nat. des Singes et des Makis.*

LE MAKI NAIN. — *Buff. Hist. Nat. par Sonn. xxxiii. p. 51, pl. 5.*

RAT DE MADAGASCAR. — *Buff. Suppl. iii. p. 149, pl. 20.*

MURINE MAUCAUCO — *Penn. Hist. Quadr. i. p. 232.*

MURINE LEMUR. — *Shaw's Gen. Zool. i. p. 106, pl. 37.*

HABITAT

in Madagascar.

Sonnini has very properly followed Audebert, in calling this animal by the name of dwarf maucauco, as it evidently belongs to the lemur tribe. The name of rat, although improper, I have still retained, merely, however, as a guide to the original work of Buffon. W

information concerning this animal. It may be remarked, however, that, as its claws did not project, it seemed to constitute a species very different from that of the rat, and to approach nearer to the palm squirrel. To this animal may be referred the rat on the south-west coast of Madagascar mentioned by the Dutch voyagers; for they tell us, that these rats live in the palm-trees, and eat the dates; that their body is long, their muzzle sharp, their legs short, and their tail long and spotted*. These characters correspond so well with those represented in the figure of our Madagascar rat, as to induce us to believe that the animal formerly mentioned belongs to this species.

It lived several years with the countess of Marsan. Its movements were extremely brisk, and its cry was nearly similar to that of the squirrel, though much weaker. Like the squirrels, it carried its food to its mouth with the fore paws, erected its tail, and leaped about. It bit desperately, and could not be tamed. It was fed with almonds and fruits. It never came out of its cage, except in the night; and it endured the winters very well in an apartment where the cold was moderated by a small fire †.

* Recueil des Voyages qui ont servi à l'Etablissement de la Compagnie des Indes Orientales, tom. i. p. 413.

† The length (according to Sonnini) of the specimen preserved in the Paris collection of natural history, is five inches and a half from the end of the nose to the origin of the tail. Its muzzle is shorter than that of the other maucaucos; its skin is gray, and its eyes large, and encircled with a tint of brown.



LORIS.

THE LORIS, OR TAILLESS MAUCAUCO*.

THE loris is a small animal of Ceylon, which is very remarkable for the elegance of its figure and the singularity of its conformation. Of all animals, its body is, perhaps, the longest in pro-

CHARACTER SPECIFICUS.

LEMUR LORIS. *L. ecaudatus* subferrugineo-cinereus, sub-
tus gracilimis, auriculis magnis. — *Shaw's Gen. Zool.* i. p. 93.

Animal cynocephalum ceilonicum. — *Seb. Mus.* i. p. 55.
pl. 35.

LE LORIS. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 58.
pl. 5.

LORIS MAUCAUCO. — *Penn. Hist. Quadr.* i. p. 228.

LORIS. — *Shaw's Gen. Zool.* i. p. 93, pl. 31.

HABITAT

in Zeylona.

W.

Maucauco with a small head, sharp pointed nose, orbits surrounded with a black circle, and a white space between them. From the top of the head, along the middle of the back, to the rump, there is a dark ferruginous line, which on the forehead is bifurcated. The ears are small. The body is covered with short, soft and silky, ash-coloured and reddish fur. The toes are naked, and the nails flat; those of the inner toe on each hind-foot are long, crooked, and sharp. The length of the animal, from the nose to the rump, is sixteen inches. — *Penn. Synops. Quadr.* p. 135.

Loris, or *locris*, the name given to this animal by the Dutch.

portion to its bulk. It has nine lumbar vertebræ, whilst all other quadrupeds have only five, six, or seven. The length of its body is an effect of this structure; and it appears still longer, because it wants a tail. Were it not for this defect of tail, and the uncommon number of vertebræ, it might be comprehended under the list of makis; for it resembles them in the hands and feet, in the quality of the hair, in the number of teeth, and in the pointed muzzle. But, independent of the singularity above taken notice of, which removes this animal from the makis, he has other peculiar qualities. His head is entirely round, and his muzzle is almost perpendicular to this sphere. His eyes are exceedingly large, and very near each other. His ears are large, rounded, and garnished in the inside with three auricles, in the form of a small shell. But what is still more remarkable, and perhaps peculiar to this animal, the female discharges her urine by the clitoris, which is perforated like the penis of the male; and these two organs have a perfect resemblance to each other, both in figure and size.

Linnæus has given a short, but excellent description of this animal*. It is likewise very

* *Statura sciuri, subferruginea, linea dorsali subfusca; gula albidior, linea longitudinalis oculis interjecta alba. Facies, tecta, auriculæ urceolatæ, intus bifoliatæ; pedum palmæ plantæque nudæ, ungues rotundati; indicum plantarum vero subulati. Capda fere nulla, mammæ 2 in pectore, 2 in abdomine versus pectus. Animal tardigradum, auditu excellens.*—*Linn. Syst. Nat.* p. 44.

well represented by Seba; and it appears to be the same animal of which Thevenot speaks in the following terms: " I saw, in the Mogul country, apes which had been brought from Ceylon. They were much esteemed, because they exceeded not the size of a man's hand, and were of an uncommon species. Their front was flat, their eyes large and round, and of a bright yellow colour, like those of certain cats. Their muzzle is very sharp, and the inside of their ears is yellow. They have no tail. . . . When I examined them, they stood on their hind-feet, often embraced each other, and looked steadfastly on the people, without being afraid * †."

* Relation de Thevenot, tom. iii. p. 217.

† It should be observed, that the loris is perfectly distinct from the following species, though it has frequently been confounded with it. This is an active little animal, of a different shape and disposition from the lemur tardigrades, which, as its name implies, is the very reverse of activity.

W.

THE BENGAL LORIS*.

UNDER the name of Bengal loris, we have figured an animal which appears to be a species bordering on the preceding. Our figure is copied from that which M. Vosmaër has engraved under the name of *fire-toed sloth of Bengal*. He has given the following description of it:

“ It will be sufficient to judge of the size of this animal, if I say, that its length, from the top of the head to the rump, is thirteen inches. Our figure, which is very correct, shows the complete

* CHARACTER SPECIFICUS.

LEMUR TARDIGRADUS. *L. ecaudatus subferrugineo-cine-reus, linea dorsali fusca, auriculis brevissimis.* — *Shaw's Gen. Zool.* i. p. 81.

LEMUR TARDIGRADUS. *L. ecaudatus subferrugineus.* — *Linn. Syst. Nat. Gmel.* i. p. 41. — *Erxleb. Mamm.* p. 63.

LEMUR TARDIGRADUS. Slow-paced Lemur. — *Specul. Linn.* i. pl. 5.

LE LORIS DE BENGAL. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 62, pl. 6.

TAILLESS MAUCAUCO. — *Penn. Hist. Quadr.* i. p. 227, pl. 48.

SLOW LEMUR. — *Shaw's Gen. Zool.* i. p. 81, pl. 29.

HABITAT

in Bengal.

W.



BENGAL LORIS.

conformation of the body. Its head is almost round, except the muzzle, which is rather pointed. The ears are very thin, oval, and straight, but almost entirely hid under the woolly hair, which also prevails withinside. The eyes are situated on the forehead, directly above the nose, and very near together. They are perfectly round, of a dark brown colour, and very large in proportion to the body. When the animal is roused in the day-time, the pupil is at first very small, but it increases by degrees to a considerable size. Upon bringing a candle towards it, when it awakes, in the evening, we observe this pupil extending in the same degree, and occupying nearly the whole circle of the eye. The nose is small, flat in front, and open on the sides.

“ There are four straight and flat cutting teeth in the front of the lower jaw, with a larger one on each side of them; then follow two great canine teeth, after which, on each side, come two round and pointed teeth, thus making twelve teeth in all. Besides, as well as I was able to see into the muzzle, there are two or three grinders on each side. The front of the upper jaw has but two little sharp teeth in the centre; a little farther, two small canine teeth, one on each side; again, two smaller teeth, and two or three grinders, making in all eight teeth, without counting the grinders. The tongue is tolerably thick and long, rounded in front, and rough.

“ The hair is long, fine, and woolly, but harsh to the touch. It is in general of a gray, or clear yellowish ash colour, a little redder on the flanks

and legs. The colour is deeper also round the eyes and the ears, and a brown stripe runs all along the back, from the head. This animal has the appearance of a tail, about two or three lines long. There are five toes on the fore-feet. The thumb is larger than the other toes, of which the middle one is the longest: the nails are like those of a man. The toes of the hind-feet are of a similar conformation, except that in these the nail of the first toe is very long, and sharp pointed. All the toes appear to me to have three joints: they are somewhat hairy above but bare beneath, and provided with a strong brown skin. The fore-feet are about six inches long, and the hind-feet about eight inches. I conceive to be a male."

From the inspection of the figure, as well as from the description of M. Vosmaër, it seems that this animal, which he names improperly the Bengal sloth, approaches nearer to the species of loris than to that of any other animal; and that these two creatures equally inhabiting the Old Continent, we ought not to call them by the name of sloths, nor to confound them with the *unau* and *ai*, which bear the name of sloth, and which are found only in America. However, M. Vosmaër, who is not of the same opinion, has started several objections to this particular, to which I shall answer *.

* What I have here omitted is a mere matter of dispute between the count de Buffon and M. Vosmaër, which would be very uninteresting to the reader.

It now remains to record the observations which M. Vosmaër has made on the nature and manners of the Bengal loris.

“ I received this singular animal,” says Vosmaër, “ on the 25th of June, 1768. Curiosity to observe him closely, induced me, notwithstanding his disagreeable smell, to take him into my room. It slept all day till the evening, and, it being in the summer season, it did not awake till half past eight. It constantly slept, sitting on its rump, close to the iron wires of the oblong, square-shaped cage in which it was confined, with its head bent forwards between the two fore-feet, which were folded over its belly. In this attitude it always held itself very strongly fixed to the wires by the two hind-feet, and often by one of its fore paws also; which authorizes me to suppose that the animal generally sleeps on trees, and attaches itself to the branches. Its motion, when awakened, was extremely slow, and always the same from beginning to end; drawing itself on from bar to bar; taking hold of the upper part of one bar by its fore-feet, and not quitting it till it had slowly and very strongly grasped another bar with one of its hands. When it crept on some hay on the ground, it moved with the same slowness, dragging one foot after the other, as if paralytic: and in this motion it raised its body but very little, merely drawing itself forward in such a manner, that frequently the belly was scarce a finger’s breadth from the ground. Vain was the attempt to drive it on by pushing

a stick through the bars; it did not make it quit its hold; if pushed too rudely, it bit the stick; and this was all the defence it made.

Towards the evening, it awaked by degrees, like one whose sleep is interrupted after having been a long while without rest. Its first care was to eat; for in the day-time the moments were too precious to be spared from repose. After having finished this task, with tolerable quickness for a sloth, it evacuated the remains of its former meal: its urine had a strong, disagreeable smell, and its faeces resembled the small pellets of sheep's dung. Its usual food, according to the captain of the ship which brought it over, was rice boiled very thick: he had never seen it drink.

“ Being persuaded that this animal would not refuse a different kind of nourishment, I gave it a sprig of lime-tree with leaves upon it, but it rejected it: fruits, such as pears and cherries, were more to its taste; it willingly ate dry bread and biscuit, but would not touch them if dipped in water. Whenever water was offered, it contented itself with smelling it, without drinking. It was passionately fond of eggs. It often made use of its hands in eating, like a squirrel. I concluded, from its eating eggs, that it would also eat birds; and accordingly, having given it a live sparrow, it immediately killed it with a bite, and very greedily ate the whole. Curious to know whether insects would also suit its taste, I gave it a live cockchafer, which it took in its paw, and devoured completely. I afterwards

gave it a chaffinch, which it ate with a good appetite, after which it slept the remainder of the day.

“ I have often seen him still awake at two hours after midnight; but from half past six in the morning he was always in a profound sleep, so that his cage might be cleaned without disturbing his repose. During the day, being awaked by force in order to provoke him, he was angry, and bit the stick, but with a very slow motion, and with a reiterated cry of *ai, ai, ai*, lengthening out the *ai* each time into a plaintive, languid, and tremulous sound, in the same manner as is reported of the sloths of America. After having been thus teased for a long time, and thoroughly awakened, he crawled two or three times round the cage, and immediately slept again.”

It was clearly this slowness of motion, and conformity in its cry to the *ai* of America, that led M. Vosmaër to believe that it was the same animal; but I again repeat, that we have only to compare their figures, to be convinced of the contrary. We can conclude nothing else from all that M. Vosmaër has brought forward on the subject, unless that there are animals, perhaps, in the Old Continent, as slow as those in the New: but the name of sloth, which may have been given to them in common, in nowise proves that they are animals of the same genus.

Besides, this animal, which we have called Bengal loris, because we are unacquainted with its proper name, is found, or was formerly found, in the regions of Asia not near so far south as Bengal;

for we have acknowledged that the skull described by M. Daubenton, *Suite de la description des choses qui sont arrivées au cabinet du roi*, and which was got from a dry well of Ancient Sidon, belonged to this species; and we ought also to mention a tooth, which was sent me by M. Pierre Henry Tesdorpf, a learned naturalist at Lubec.

“ This tooth,” says he, “ was sent me from China; it belongs to an animal as yet, perhaps, unknown to any naturalist: it perfectly resembles the canine teeth of an hippopotamus, of which I have a complete head with its skin on. As far as I am able to judge of this tooth, which is as handsome and complete as the last, though small (since it weighs but fourteen grains), it seems to be full grown, because it has been used by the animal, from which it was obtained, as much as the largest hippopotamus uses his. The black mark which we perceive on each side the point of the tooth, seems a proof that it is not from a young animal. The enamel is also precisely of the same kind as that of the canine teeth of the hippopotamus, which makes me think that this very little animal is nevertheless of the same class as the great hippopotamus*.”

In 1771, I replied to M. Tesdorpf, saying, that I knew nothing of the animal to which this tooth appertained, and, in effect, it was not till the year 1775, that we had any knowledge of the

* Letter from M. Tesdorpf to M. de Buffon, dated Lubec, 1771.

Bengal loris, to which animal it belongs, as well as the skull found in the territory of Ancient Sidon.

It is to the first loris which I have described, to the loris of Bengal, that we must refer the name of thevanque, which M. D'Obsonville says that animal bears in the East Indies, and about which he has been so obliging as to give me the following information.

“ The thevanque, which, according to M. D'Obsonville, is in India also called the *latonneur* and *tongre*, inhabits the most solitary rocks and woods of the southern parts of India, as well as Ceylon: notwithstanding some similarities of organization, it belongs neither to the species of monkey, nor to that of makis: we believe it is a scarce animal.

“ In 1775, I purchased a thevanque: it was, when standing, rather less than a foot in height; but it is said there are some of a larger size; however, mine appeared to be completely formed, for during the year which I had it, it did not grow at all.

“ The back part of the head, as well as the ears, appeared very like a monkey's, but its forehead was larger in proportion, and flat: its muzzle is also slender, and shorter than that of a martin, it turns up above the eyes somewhat like that of the spaniels which we procure from Spain. Its large mouth, well furnished with teeth, was armed with four long and sharp *canines*. Its eyes were large and even with the head.* The iris appeared of a gray-brown mixed with a yel-

lowish tint. The neck was short; the body very long. Above the haunches it was less than three inches in circumference. It had no tail; its buttocks were fleshy without callosities, and the fleshy part of a soft and agreeable whiteness; its breast was large: its arms, hands, and legs, appeared to be well shaped; however, the fingers are separated like those of monkeys. The hair of the head and back is of a dull tawny gray: on the fore part of the body it is thinner, and almost white.

“ It walked with some difficulty; and was so slow, as to move at most four toises in a minute: its legs were too long, in proportion to its body, for it to run so conveniently as other quadrupeds: it moved more readily in an upright posture, and then it would even carry a bird between its forefeet.

“ It sometimes made a sort of modulation, or very gentle whistling; I could easily distinguish its cry of want, of pleasure, of pain, and even of chagrin, or of impatience. If, for example, I attempted to take away its prey, it appeared to change countenance, it emitted a kind of trembling cry, and then the sound was sharp. The Indians say, that, in coupling, it squats on its tail, and closes with the female face to face.

“ The thevanque differs widely from the monkey in its exterior conformation, but still more in its character and habits: it is melancholy, silent, patient, carnivorous, and walks in the night, living insulated with its little family. All day long it remains squat on its tail, and

sleeps, supporting its head on its hands, which are closed between its thighs. But, while asleep, its ears are very sensible to impressions from without; and it neglects no opportunity to seize whatever is brought within its reach. Broad daylight seems to displease it; however, it does not appear that the pupils of its eyes contract, or are fatigued by the light of a room.

“ The one I reared was at first confined, but afterwards left at liberty. On the approach of night, it rubbed its eyes; then, attentively looking about it on all sides, it walked upon the furniture, or rather on the ropes which I had placed for that purpose. Milk and some ripe fruits were not unpleasant to it, but it was fond only of birds and insects. If it perceived any of these last mentioned objects, it approached with a lengthened and cautious pace, like some one creeping in the dark on tip-toe, in order to surprise another: it stops when at about the distance of a foot from its prey; and, rising upon its legs, it advances, at first gently extending its arms, then all at once seizes and strangles it with singular agility.

“ This unfortunate little animal perished accidentally: it appeared strongly attached to me; I used to caress it after I had given it victuals; it showed its sensibility by taking the end of my hand and pressing it against its bosom, and in fixing its half opened eyes on mine*.”

* A very pleasing and interesting account of the slow lemur is inserted in the fourth volume of the Asiatic Re-

searches. It was written by the late sir William Jones, who paid great attention to his slothful companion, and who has described his figure, disposition, and habits, with much accuracy. There is something in the concluding sentence of his paper, which bespeaks the amiable character of that learned man. "My little friend," says sir William, "was, in the whole, very engaging; and when he was found lifeless, in the same posture in which he would naturally have slept, I consoled myself with believing that he had died without pain, and lived with as much pleasure as he could have enjoyed in a state of captivity."

H.



W. H. K. R.

AYE AYE.

THE AYE AYE*.

Aye Aye is an exclamation used by the inhabitants of Madagascar, which M. Sonnerat thinks ought to be applied to this animal, which is found in the western part of Madagascar. He says "that it does not assimilate with any genus, and that it partakes of the makis, the squirrel, and the monkey. Its large and flat ears greatly resemble those of the bat; they consist of two black skins, almost smooth, studded with several long black hairs tipped with white. Although the tail appears perfectly black, yet the lower half of the hairs are white. Its principal cha-

* CHARACTER SPECIFICUS.

LEMUR PSILODACTYLUS. L. cinereo-ferrugineus, cauda villosissima, digito palmarum medio longissimo nudo. — *Shaw's Gen. Zool.* i. p. 109.

AYE AYE. — *Sonnerat, Voy. aux Indes*, ii. p. 142, pl. 88.

AYE AYE. — *Buff. Hist. Nat. par Sonn.* xxxiii, p. 49, pl. 12.

AYE AYE SQUIRREL. — *Penn. Hist. Quadr.* ii. p. 142, pl. 75.

LONG-FINGERED LEMUR. — *Shaw's Gen. Zool.* i. p. 109, pl. 34.

HABITAT

in Madagascar.

W.

racter, and one of the most singular, is the middle toe of the fore-feet: the two last articulations are very long, slender, and perfectly bare: it uses them to take off the worms from the trunks of the trees, and to pass them into its throat; they seem also to be of service to the animal for fixing itself to branches. It is a timid animal, and cannot see by day, and its eye, of an ochre-colour, resembles that of an owl. It is extremely slow, and consequently very gentle. This aye aye slept almost continually, and it was only by repeated shakings that it could be roused. It lived nearly two months, having nothing for its nourishment but boiled rice, which it took with its two toes, in the manner that the Chinese use their eating sticks.

I have closely examined the skin of one of these animals given me for the king's collection: it appeared to approach the squirrel kind more than any other; it had also some analogy with the species of jerboa which I have described by the name of tarsier. The length of the toes on the fore-feet appears to constitute a unique and very distinctive character.

This animal is of a dark brown colour, mixed with black and gray; it is, on the head, round the eyes, on the body, the thighs, and the legs, of a deep brown, in which, however, the black prevails on the back, and on several parts of the body and legs. The tail is quite black; the sides of the head, the neck, the jaw, and the belly, are grayish; the woolly hairs of this colour are beneath the black or white hairs, two or

three inches long, which are on the body and legs: the legs and thighs are ferruginous: the black prevails near the feet, which are covered with little hairs of that colour. The head is shaped like that of the squirrel; it has two cutting teeth in the front of each jaw *. The ears are large, naked, and without hair, wide at their opening, straight, and round at their ends. There is a brown band round the eyes, and the eyelids are black. The toes, which are two lines broad, are nearly of an equal size; but the first toe, which forms the thumb, and which is twelve lines long, has a nail of three inches six lines, which is large and flat, like those of the maucaucos. This character of the toe separates the animal far from the squirrel kind. Its hairs are harsh, like horse-hair. During the time that M. Sonnerat was in possession of this animal, he never observed it to set up its tail like the squirrels, but always to carry it trailing †.

The tarsier, of all the flat-thumbbed animals, is that which approaches nearest to the aye aye; they have that character in common; and, moreover, resemble each other in the tail, which is long and covered with hairs; in the straight, naked, and transparent ears; and in the woolly hair, which immediately covers the skin. There

* Sonnini observes that these teeth are very close together, and resemble a parrot's beak: the lower ones are much the strongest. W.

† Buffon's figure, in this respect, is wrong. The middle toes are also too thick. W.

are also some marks of resemblance in the feet, for the tarsier has very long toes.

This aye aye was a female; she had two teats at the bottom of the belly; these teats measured five lines*

* See the article Aye aye in Sonnerat's Voyage to the East Indies, tom. ii. p. 137. He had a male and female alive.



SERVAL.

THE SERVAL, OR MOUNTAIN CAT*.

THIS animal, which lived several years in the royal menagery, appears to be the same with that described by the gentlemen of the academy, under the name of *chat-pard*; and we should, perhaps, have been still ignorant of its real name, if the marquis de Montmirail had not

* CHARACTER SPECIFICUS.

FELIS SERVAL. F. cauda subabbreviata, corpore supra fusco maculis nigris, orbitis ventreque albis.—*Linn. Syst. Nat. Gmel.* i. p. 82.—*Schreb.* iii. p. 407, pl. 103.—*Erxleb. Mamm.* p. 523.

CHAT PARD.—*Perr. Anim.* i. p. 108, tab. 13, fig. bona.—*Mém pour servir à l'Histoire des Animaux*, part. i. p. 109.

LE SERVAL.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 140, pl. 14.

SERVAL.—*Penn. Hist. Quadr.* i. p. 301.—*Shaw's Gen. Zool.* i. p. 389, pl. 90.

HABITAT

in silvis montosis Indiæ, in arboribus degens, vix descendens in terram, saliensque ex arbore in arborem.

W.

Serval is the name which the Portuguese have given to this animal. The natives of Malabar call it *maraputé*.

discovered it in an Italian book, of which he sent us the following passage in our own language: "The *maraputé*," says P. Vincent Marie, "which the Portuguese in India call *serval*, is a ferocious animal, larger than a wild cat, and somewhat less than the civet; from which last he differs, by having a rounder and larger head, and a kind of depression on the middle of the forehead. He resembles the panther in the colour of his hair, which is yellow on the head, back, and flanks, and white on the belly; and likewise in the spots, which are distinct, equally distributed, and a little smaller than those of the panther. His eyes are extremely brilliant. His whiskers are long and stiff; his tail is short; and his feet are armed with long hooked claws. He inhabits the mountains of India. He is seldom seen on the ground, but remains always on the trees, where he makes his nest, and seizes birds, which constitute his chief nourishment. He leaps from tree to tree as nimbly as a monkey, and with such address and agility, that he runs through a considerable space in an instant, and may be said only to appear and disappear. He is extremely fierce, and yet he flies the aspect of man, unless when provoked, and particularly when his dwelling is injured: he then becomes furious, darts upon the offender, and bites and tears nearly in the same manner as the panther."

Neither captivity, nor good or bad treatment, can soften the ferocity of this animal. The one we saw at the menagery was always prepared to

dart upon those who approached him; and we were obliged to draw and describe him through the grate of his apartment. He was fed with flesh like the panthers and leopards.

This serval, or maraputa of Malabar and India *, appeared to be the same animal with the tiger-cat of Senegal and the Cape of Good Hope, which, according to the testimony of travellers †, resembles the cat in its figure, and the tiger (that is, the panther or leopard) by the black and white spots of its hair. “This serval,” they remark, “is four times larger than a cat. He is very voracious, and eats apes, rats, and other animals.”

From comparing the serval with the *chat-pard*, or mountain cat described by the gentlemen of the academy, we discovered no other differences than the long spots on the back, and the annulated tail of the former, which were wanting in the latter. The spots on the back of the serval are only placed nearer each other than on the rest of the body. But these differences are too slight to create any suspicion concerning the identity of the species of these two animals.

* At Sagari, an island in the Ganges, there are tiger-cats as large as a wedder. — *Nouv. Voyage par le Sieur Luvhier*, p. 90.

† Voyage de Le Maire, p. 100. — The wood-cat, or tiger-cat, is the largest of all the wild cats in the Cape. He lives in the woods, and is spotted nearly in the same manner as the tiger. The skins of these animals are excellent furs both for warmth and ornament, and they bring a good price at the Cape. — *Descript. du Cap de Bonne Esperance, par Kolbe*, tom. iii. p. 50.

THE OCELOT, OR MEXICAN CAT*.

THE ocelot is an American animal. It is ferocious and carnivorous, and may be ranked with the jaguar and cougar; for it approaches

* CHARACTER SPECIFICUS.

FELIS PARDALIS. F. cauda elongata, corpore maculis superioribus virgatis, inferioribus orbiculatis. — *Linn. Syst. Nat. Gmel.* i. p. 78. — *Schreb.* iii. p. 390, pl. 103.

Felis rufa, in ventre ex albo flavicans, maculis nigris, in dorso longis, in ventre orbiculatis variegata. — *Briss. Quadr.* p. 199.

Catus pardus, sive catus montanus Americanorum. — *Ray's Quadr.* p. 169.

Tlacoozelotl. Tlaozelotl. Catus pardus Mexicanus. — *Hernand. Mex.* p. 512, cum fig.

DIE WILDE KATZE. — *Müll. Naturf.* i. p. 239, pl. 30, fig. 7.

L'OCELOT. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 144. pl. 15.

The LYNX OF GUIANA. — *Bancr. Guian.* p. 140.

MEXICAN CAT. — *Penn. Quadr.* i. p. 287, pl. 57, A.

OCELOT. — *Shaw's Gen. Zool.* i. p. 356, pl. 88.

HABITAT

in America calidiore, præsertim terra firma, California et Nova Hispania. W.



OCELOT.



FEMALE OCELOT.

them in magnitude, and resembles them in figure and dispositions. A male and female were brought alive to Paris by M. l'Escot, and we saw them at the fair of St. Ovide in the month of September, 1764. They came from the neighbourhood of Carthagera, and had been carried off from their mother when very young, in the month of October, 1763. At the age of three months, they had become so strong and cruel, that they killed and eat a bitch which had been given to them for a nurse. At the age of one year, when we saw them, they were about two feet in length ; and it is probable that they

The Mexican cat has its head, back, upper part of the rump, and tail, of a bright tawny colour. A black stripe extends along the top of the back, from head to tail. From the nostrils to the corners of the eye is a stripe of black, and the forehead is spotted with black. The sides are whitish, marked lengthwise with long stripes of black, hollow and tawny in the middle ; in which are sprinkled some small black spots ; from the neck towards the shoulder-point are others of the same colours, and the rump is marked in the same manner. The legs are whitish, varied with small black spots. The tail is spotted with small black spots near its base, and with larger near the end, which is black. — *Penn. Synops. Quadr.* p. 177.

Pardalis. *Felis cauda elongata, corpore maculis superioribus virgatis, inferioribus orbiculatis . . . habitat in America. Magnitudo melis, supra fuscus, subtus albicans ; lineæ punctaque nigra per totum corpus longitudinaliter sparsa ; sed pedes et abdomen tantum punctis, latera lineis latioribus albis et fuscis pinguntur. Aures breves margine bifidæ absque penicillis, pedes 5-4 cauda verticillata proportionē cati. Mystaces 4 ordinum, in singulo ordine setæ 3, sive 5, albæ, basi nigræ, longitudine capitis.* — *Linn. Syst. Nat.* p. 62.

had not then acquired above one half or two-thirds of their full growth. They were exhibited under the name of the *tiger-cat*; but we have rejected this precarious and compound appellation, because the jaguar, the serval, and the margay, or Cayenne cat, were transmitted to us under the same denomination, though each of these animals differs from the other, as well as from the ocelot.

Fabri is the first author who mentions this animal in a distinct manner. He caused the drawings of Recchi to be engraved, and from these drawings, which were coloured, he composed a description of the ocelot. He likewise gives a kind of history of it from the writings and information of Gregoire de Bolivar. I have made these remarks with a view to remove a difficulty which had deceived all the naturalists as well as myself. This difficulty is to ascertain whether the two animals drawn by Recchi, the first under the name of *tlatlauhqui-ocelotl*, and the second under that of *tlacoozlotl*, *tlalocelotl*, and afterwards described by Fabri as distinct species, are not the same animal. Though the figures are pretty similar, they were regarded as distinct animals, because their names, and even the descriptions of them, were different. I at that time imagined that the first might be the same with the jaguar, and therefore gave it the Mexican name *tlatlauhqui-ocelotl*, which I now perceive did not belong to it: and, since I had an opportunity of seeing both the male and fe-

male, I am persuaded that the two described by Fabri are only the same animal, of which the first is the male and the second the female. Nothing less than an examination of the male and female together could have enabled us to detect this error. Of all spotted animals, the robe of the male ocelot is unquestionably the most beautiful, and the most elegantly variegated *. Even that of the leopard is not to be compared with it for vivacity of colours and symmetry of design, far less those of the jaguar, panther, and ounce. But, in the female ocelot, the colours are fainter, and the design more irregular. This remarkable difference deceived Recchi, Fabri †, and others.

When the ocelot has acquired his full growth, he is, according to Bolivar, “two feet and a half

* *Universum corpus pulchro roseoque subrubet colore, excepto inferiore ventre qui albicat potius; maculis rosarum effigie, nigricantibus omnibus intra suave rubentem colorem, totum ita corpus, pedes et cauda ordine quodam distinguuntur ut elegantem plane huic animali acu pictum tapetem vel peripetasma impositum crederes: sunt autem maculæ hæ in dorso et capite rotundiores majoresque: versus ventrem vero pedesque oblongiusculæ et multo minores. — Fabri apud Hernandez. Hist. Mex. p. 498.*

† Si animalis figuram spectemus cum antecedente non nihil corporis delineatio congruit; si colorem et maculas quibus pingitur, plurimum discrepat. In hoc totius color corporis non rubicundus sed obscure cinereus apparet, præter ventrem tamen qui albicat. Maculæ nec ordinatæ adeo nec ita rotundæ roseive coloris et figuræ, sed oblongæ nigricantes omnes, in medio vero albicantes sparguntur; crura non ita fortia, &c. — *Ibid.* p. 512.

high, and about four feet in length. The tail, though pretty long, touches not the ground, and, of course, exceeds not two feet. He is a very voracious, and, at the same time, a timid animal. He seldom attacks men, and is afraid of dogs. When pursued, he flies to the woods, and climbs a tree, where he remains, in order to sleep, and to watch the passage of cattle or smaller animals, and darts down upon them, whenever they are within his reach. He prefers blood to flesh : hence he destroys a great number of animals ; because, instead of satiating himself by devouring their flesh, he only quenches his thirst by drinking their blood *."

In a state of captivity, he retains his original manners. Nothing can soften the natural ferocity of his disposition, or calm the restlessness of his movements. For this reason, he is always kept in a cage. " At the age of three months," says M. l'Escot, " when these two young ocelots had devoured their nurse, I kept them in a cage, and fed them with fresh meat, of which they eat from seven to eight pounds a-day. The male

* Dampier mentions this animal under the name of the *tiger-cat*. " The tiger-cat of the Bay of Campeachy is about the size of a bull-dog. His legs are short, and his body resembles that of a mastiff. But, in the head, hair, and the manner of hunting his prey, he has a great similarity to the tiger (*jaguar*), except that he is not so large. They are here very numerous. They devour calves, and game of all kinds, which abound in this country, and which render them less dangerous to men . . . their aspect is extremely proud and ferocious. — *Dampier's Voyage*, vol. ii. p. 62.

and female rub against each other like our domestic cats. The males have a remarkable superiority over the females. Notwithstanding the violent appetite of these two animals for flesh, the female never presumed to partake till the male was satiated, or gave her the pieces he had rejected. I sometimes gave them a live cat, whose blood they sucked till the animal died; but they never eat its flesh. I put on board two kids for their subsistence; for they neither eat boiled nor salted meat *."

It appears from the testimony of Bolivar, and likewise from that of M. P'Escot, that the female ocelot produces but two young at a litter; for the latter informs us, that, before the two young ones mentioned above were taken, the mother was killed. The ocelots, like the jaguar, the panther, the leopard, the tiger, the lion, and all animals remarkable for the largeness of their size, produce but a small number at a time. But the productions of a cat, that may be associated with this tribe, are numerous; which is a proof, that the number produced depends more upon magnitude than figure †.

* Letter of M. P'Escot, who brought these animals from Carthagena to M. de Beost, correspondent of the Academy of Sciences, dated September 17, 1764. *Nota*, M. de Beost, who obligingly sent this letter to us, is a great adept in natural history; and this is not the only opportunity we shall have of mentioning his communications.

† D'Azara informs us, that the ocelot is so common in Paraguay, that, within two leagues of the town of St. Ignace, eighteen have been caught in two years: nevertheless, he

adds, that it is not much known, because the dogs never find it, and are unable to penetrate into its retreats. It preys in dark and tempestuous nights, entering into enclosures and court-yards. When first caught and confined, it requires five pounds of meat a-day; afterwards, three pounds will be sufficient.

W.



MARGAY.

THE MARGAY, OR CAYENNE CAT*.

THE margay is much smaller than the ocelot. In size and figure, he resembles the wild cat, only his head is more square, his muz-

CHARACTER SPECIFICUS.

FELIS TIGRINA. F. cauda elongata, corpore fulvo nigro striato maculatoque, subtus albido. — *Linn. Syst. Nat. Gmel.* i. p. 80. — *Erxleb. Mamm.* p. 517. — *Schreb.* iii. p. 369. pl. 106.

Felis ex griseo flavescens, maculis nigris variegata. — *Briss. Quadr.* p. 193.

Felis silvestris Americanus tigrinus. — *Seba, Mus.* i. p. 47, pl. 30, fig. 2.

Felis fera tigrina. — *Barr. Fr. Equin.* p. 152. — *Fermin Surin.* ii. p. 85.

Maragão sive Maracaja. — *Marcgr. Bras.* p. 233.

Die Wilde Amerikanische Tiegerkaz. — *Meyer Thiere.* iii. pl. 22, fig. Sebæ.

LE MARGAY. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 152, pl. 14.

THE TIGER CAT OF GUIANA. — *Bancroft,* p. 139.

CAYENNE CAT. — *Penn Hist. Quadr.* i p. 292.

MARGAY. — *Shaw's Gen. Zool.* i. p. 359, pl. 90.

HABITAT

in America Australi,

W.

zle and tail longer, and his ears more rounded. His hair is also shorter than that of the wild cat, and he is marked with black bands and spots upon a yellow ground colour. He was sent to us from Cayenne, under the name of the *tiger-cat*. He, indeed, is of the same nature with the cat, jaguar, and ocelot, animals who have received the appellation of *tigers* in the New Continent. According to Fernandez, this animal, when full grown, is not so large as the civet; and, according to Marcgrave, whose comparison seems to be more just, he is of the size of a wild cat, which he resembles likewise in natural dispositions, living on small animals, poultry, &c. But it is extremely difficult to tame him, and he never loses his natural ferocity. His colours vary, though they are generally such as we have represented them. This animal is very common in Guiana, Brasil, and all the other regions of

Cayenne cat, with the upper part of the head, neck, back, sides, shoulders, and thighs, of a bright tawny colour. The face is striped downwards, with black. The shoulders and body are marked with stripes, and oblong, large, black spots, and the legs with small spots. The breast, and inside of the legs and thighs, are whitish, and spotted with black. The tail is very long, and marked with black, tawny, and gray. It is of the size of a common cat. — *Pennant's Synops. of Quad.* p. 182.

Margay, a word derived from *maragua*, or *maragaia*, the Brazilian name of this animal.

At Maragnon there is a species of wild cats, which the Indians call *margaiá*, with beautifully spotted skins. — *Miss. du P. d'Abbeville*; p. 250.

South America ; and he seems to be the same with the pichou* of Louisiana. But the species is not so frequent in temperate as in warm climates.

To the article *margay* we must refer the tiger-cat of Cayenne, mentioned by M. de la Borde in the following terms :

“ The skin of the tiger-cat, like that of the ounce, is very much spotted. Though he has the dispositions of the fox, he is somewhat smaller. He is commonly found in the woods of Cayenne. He is a great destroyer of game, such as the agoutis, akouchis, partridges, pheasants, and other birds, whose young he seizes in their nests. He is very alert in climbing trees, where he conceals himself. He runs by a kind of leaping ; but his motion is not quick. In his aspect, gait, and manner of lying in wait, he has a perfect resemblance to the cat. At Cayenne, I have seen several of them chained in the houses. They allowed themselves to be stroked a little on the back. But they always retained a degree of ferocity in their aspect. They were fed with fish and meat, boiled or raw : every other food was disagreeable to them. They produce in all seasons, whether summer or winter, and

* The pichou is a kind of cat as tall as a tiger, but not so thick. His skin is equally beautiful. He makes great devastation among poultry ; but happily he is not very common in Louisiana. — *Hist. de la Louisiane, par le Page du Pratz*, toup. ii. p. 92, fig. p. 67.

bring forth two at a time in the hollows of corrupted trees *."

If we take a survey of these cruel animals, whose skins are so beautiful, and whose nature is so perfidious, we shall find, in the Old Continent, the tiger, panther, leopard, ounce, and serval; and, in the New Continent, the jaguar, ocelot, and margay, which three appear to be miniatures of the former, and possessing neither the same stature nor strength; they are also timid and dastardly, in proportion as the others are bold and intrepid.

There is still another animal of this genus, which the furriers call *guepard*. We have seen several skins of it, which resembled those of the lynx in the length of the hair. But, as the ears are not terminated by pencils, the *guepard* is not a lynx. Neither is he a panther nor a leopard; for his hair is not short, and he has a mane of four or five inches long on his neck and between

* Stedman tells us that the skin of the margay is of a beautiful yellow, with little white patches on it, bordered with black. It is a very active animal; but is as fierce, as destructive, and as savage as the jaguar and the cougar. The tiger cats of Guiana are so bold, as to be almost fearless of mankind. One evening, when Stedman, during one of his excursions, had slung his hammock in the woods, between two trees, he perceived one of these animals beneath it, quietly employed in devouring the remains of their supper; and, although there were ten or twelve people seated round a great fire, he did not disturb himself, till Stedman moved to get his sword.

his shoulders. The hair on his belly is likewise three or four inches in length, and his tail is proportionally shorter than that of the panther, leopard, or ounce. He is nearly of the size of this last animal, being only about three feet and a half long. His fur, which is of a very pale yellow colour, is speckled, like that of the leopard, with black spots; but they are smaller and nearer each other, being only three or four lines in diameter.

I imagined that this animal was the same with that mentioned by Kolbe under the name of the *tiger-wolf*, whose description is below *. He is common in the neighbourhood of the Cape of Good Hope. During the day he remains in the clefts of rocks, or in holes which he digs in the earth; and, in the night, he goes in quest of prey. But, when he hunts, he makes a howling noise, which alarms both men and animals; so that it is easy either to avoid or to kill him. In fine, the word *guépard* seems to be

* He is of the size of a common dog, and sometimes larger. His head is as big as that of a bull-dog. His chops, as well as his muzzle and eyes, are large, and his teeth are very sharp. His hair is curled, like that of a water-dog, and spotted like that of a tiger. His paws are large, and armed with great claws, which he retracts at pleasure, like the cats. His tail is short. . . . The lion, tiger, and leopard are his mortal enemies. They pursue him even to his den, dart upon him, and tear him in pieces.—*Descript. du Cap de Bonne Esperance, par Kolbe, tom. ii. p. 69.* *Nota,* The animal which this author calls the *tiger*, is the leopard, and what he calls the *leopard*, is the panther.

derived from *lépard*, the mode in which the Germans and Dutch spell *leopard*. We have also remarked, in this species, varieties both in the ground colour and in that of the spots. But all the guepards have the common characters of long hair on the belly, and a mane on the neck.

THE TIGER-CAT OF CAROLINA*.

THERE is another tiger-cat, or rather a species of wild cat, in Carolina, of which the late Mr. Colinson sent me the following notice :

“ The male was of the size of a common cat, being nineteen inches long from the nose to the tail, which last was four inches in length, and had eight white rings, like the maucauco. His colour was a bright brown, mixed with gray hairs. He was remarkable for pretty large black bars along the body and sides, from the head to the tail. The belly is whitish, with black spots. The limbs are slender, and spotted with black. His ears have a large aperture, and are covered with fine hair. On each side of the nose, below the eyes, are two large and remarkable black spots; below these spots, and joining the lip, there is a tuft of stiff black hairs. The make of the female is more slender. She is of a reddish gray colour, without any spots on the back; but, on the belly, which is of a dirty white colour, there is a black spot.”

* CHAT-TIGRE DE LA CAROLINE.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 159.

MOUNTAIN LYNX.—*Penn. Hist. Quadr.* i. p. 300.

AMERICAN SERVAL.—*Shaw's Gen. Zool.* i. p. 370.

THE WILD CAT OF NEW SPAIN*.

A coloured drawing has been sent me from Spain, with the following notice of a tiger-cat, or cat of the woods, which I have figured.

“ Tiger-cat, cat of the woods, or wild cat of New Spain. It is nearly three feet high, and more than four in length, from the end of the nose to the origin of the tail: it has two little eyes, and its tail is rather short. Its colour is bluish-gray, spotted with black: its hair is so stiff, that pencils may be made of it with a firm point.”

I conceive this tiger-cat, or cat of the woods, from New Spain, to be the same as the serval, which I have previously figured.

* LE CHAT SAUVAGE DE LA NOUVELLE ESPAGNE. — *Buff Hist. Nat. par Sonn.* xxxiii p. 161, pl. 16.

NEW SPAIN CAT. — *Penn. Hist. Quadr.* i. p. 299.

Dr. Shaw considers this as a variety only of the preceding species. W



Warner Sc

WILD CAT of NEW SPAIN.

THE BIZAAM*.

IN the year 1771, M. Vosmaër printed, at Amsterdam, the description of an animal under the name of *bizaam cat*; of which description the following is an extract:

“ It is nearly of the size of the common cat; the general colour of the body is a clear ash-gray, enriched with brown patches. A black line runs along the middle of the back to the tail, which is ringed white and black; the tip is black, or of a very deep brown. The feet are brown within, and gray, spotted with brown,

* CHARACTER SPECIFICUS.

VIVERRA TIGRINA. V. cauda annulata apice fusca, corpore cinereo fusco-maculato, stria a capite ad caudam producta nigra. — *Linn. Syst. Nat. Gmel.* i. p. 91. — *Schreb.* iii. p. 425, pl. 115.

CHAT BIZAAM. — *Vosmaër, Descr. d'une espece sing. de Chat Africain. Amst.* 1771.

LE BIZAAM. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 162, pl. 16.

TIGERINE WEESEL. — *Shaw's Gen. Zool.* i. p. 408, pl. 93.

BLOTCHED CAT. — *Penn. Hist. Quadr.* i. p. 298.

HABITAT

in Capite Bonæ Spei:

W.

on the outside: the belly and breast are ash-gray: there are brown stripes on both sides of the head, and on the nose; and white spots at the end of the nose, and under the eyes. The round and straight ears are covered with short and gray hairs: the nose black, and the whiskers brown and white. The feet are armed with little white and crooked claws, which are within the fur.

“ This pretty animal was rather of a sullen temper, without, however, being mischievous: it was secured by a chain. It readily ate meat, but particularly live birds. It was never heard to mew; but, when tormented, it growled and spit, like a cat.”

M. Vosmaër adds that this *bazaam cat* was kept for three years, and that, during that time, it never smelt in the slightest degree of musk: therefore, those who have called it *musk cat*, have apparently confounded it with the civet, or Cape genet; nevertheless, these two animals do not resemble each other at all, for M. Vosmaër compares the bizaam to the margay. “ Of all the animals,” says he, “ that M. de Buffon has described, the margay of Cayenne bears the strongest resemblance to the bizaam cat, although, when we compare them, the margay has a much thinner and more pointed muzzle: it differs greatly also in the tail, and in the shape of the spots.”

I must observe, on this subject, that these principal differences have been properly noticed by M. Vosmaër; but these animals differ



BIZAAM.

also in size ; the margay being as large as the wild cat, and the bizaam as the domestic cat, that is to say, as small again. Besides, the margay has no black stripe on the back ; its tail is much shorter, and not so pointed ; and what decides the true specific difference between the margay and the bizaam, is, that one is of the Old Continent, and the other of the New*.

* This animal has been referred by Schreber, and after him by Gmelin, to the genus *viverra*. Dr. Shaw has also followed these naturalists in this respect, but with some hesitation, since he observes that Pennant, in the last edition of his *History of Quadrupeds*, refers this animal to the genus *felis*, and adds, that, from M. Vosmaër's figure, it should seem to have at least equal affinity to that genus as to the present. The bizaam appears to me to have *more* than equal affinity to the genus *felis*, both in its shape and manners ; and I perfectly agree with Pennant, although, in deference to the abovementioned naturalists, I have not altered its generic name.

W.

THE JACKAL AND ADIVE*.

WE are uncertain whether these two names denote animals of different species. We only know, that the jackal is larger, fiercer, and more

* CHARACTER SPECIFICUS.

CANIS AUREUS. C. cauda recta, corpore pallido fulvo. — *Linn. Syst. Nat. Gmel.* i. p. 72. — *Schreb.* iii. p. 365, pl. 94. — *Erxleb. Mamm.* p. 571.

CANIS FLAVUS. — *Briss. Quadr.* p. 171.

LUPUS AUREUS. — *Ray's Quadr.* p. 174. — *Kæmpf. Am. Ex.* p. 413, pl. 407, fig. 3.

VULPES INDIE ORIENTALIS. — *Valent. Mus.* p. 452, pl. 452.

ADIL. — *Belon, Observ.* p. 160.

CHIEN SAUVAGE INDIEN. — *Vosmaër, Descr. Amst.* 1773.

LE CHACAL ET L'ADIVE. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 167, pl. 17.

SCHAKAL. — *Penn. Hist. Quadr.* i. p. 261.

JACKAL. — *Shaw's Gen. Zool.* i. p. 304, pl. 79. — *Bew. Quadr.* p. 292.

HABITAT

in Asiæ regionibus calidioribus, et in Barbaria.

W.

Dog of the form of a wolf, but much less. The colour is a bright yellow. — *Pennant's Synops. of Quadr.* p. 158.

difficult to tame than the adive*; but that, in every other article, the resemblance is perfect. Hence the adive may be only the jackal rendered smaller, feebler, and more gentle than the wild race, by being tamed and kept in a domestic state; for the adive is to the jackal nearly what the lap-dog, or small water-dog, is to the shepherd's dog. However, as this fact is exemplified in a few instances only; as the species of the jackal is not, in general, domestic, like that of the dog; and, as differences so great seldom happen among free species; we are inclined to believe that the jackal and adive are really two distinct species. The wolf, the fox, the jackal, and the dog, though they approach very near each other, constitute four different species. In the dog kind, the varieties are extremely numerous. Most of these originate from their domestic condition, to which they have been very early reduced. Man has multiplied the races of this species by mixing the great and the small, the beautiful and the ugly, the long and the short haired, &c. But, independent of these

Chacal, jackal, the name of this animal in the Levant. It has likewise received the following denominations from different authors: Adil; *Belon*. Tulki; *Olearius*. Siacalle; *Le Brun*. Addibo; *P. Vincent Marie*. Chical; *Hasselquist*. Sical; *Pollux*. Squilachi; *Belon*. Zacalia; *Spon and Wheeler*. Siachal, Schacal, Siechaal, Siacali; *Koempfer*. Jacard; *Delon*. Deeb; *Shaw*. Jaqueparel, in Bengal, and Nari in Madeira, according to other travellers.

* I have read, in some of our French chronicles, that, in the reign of Charles IX., many of the court ladies kept adives, instead of lap-dogs.

races produced by man, there are several varieties which seem to derive their origin from the climate. The English bull-dog, the Danish dog, the spaniel, the Turkish Dog, the Siberian dog, &c., have received their denominations from the countries which produced them; and they appear to differ from each other more than the jackal does from the adive. Hence the jackals may have undergone several changes from the influence of different climates; and this idea corresponds with the facts we have collected. From the writings of travellers it appears, that the jackals every where vary in size; that in Armenia, Cilicia, Persia, and in all that part of Asia called the *Levant*, where this species is very numerous, troublesome, and noxious, they are commonly as large as our foxes*, only their

* The jacard or adive is as large as a middle-sized dog, and resembles the fox in its tail, and the wolf in its muzzle. They are reared in houses; but their natural disposition is to conceal themselves, during the day, in the earth, from which they go out in the night only to search for food. They go in packs, put the men to flight, and devour the children. Their cries are plaintive, and a person is apt to mistake the noise they make for that of children of different ages mingled together. The dogs hunt and drive these animals from the habitations of men.—*Voyage de Delon*, p. 109. In Persia there is a species of fox called *schacal*, which the natives commonly denominate *tulki*. They are extremely numerous, and nearly of the size of European foxes. The back and sides are covered with a kind of coarse wool and long stiff hairs. The belly is white as snow, the ears black as jet; and

* the tail is smaller than that of our foxes. We heard them roaming during the night around the village where we had put up, and were much troubled with their mournful and in-

legs are shorter, and their colour is a brilliant yellow; from which circumstances they have

cessant cries, which resembled the voices of men in distress.—*Voyage d'Olearius*, p. 531. The addibo (*adive*) resembles the wolf in figure, hair, and tail. But it is smaller, and even less than the fox. It is an extremely voracious, but a stupid animal. In the night it roams about, and remains in its hole during the day. In the dusk of the evening, nothing else is to be seen in the fields. These animals approach travellers, and stop to reconnoitre them, without any appearance of fear. They enter the houses and churches, where they tear and devour every thing they can find. Whatever is made of leather is a favourite morsel. The adive yelps like a fox; and when one cries, all the rest reply. This instinct of crying all together seems not to be voluntary, but to proceed from pure necessity; for when one of them enters into a house to steal, and hears the cries of his companions at a distance, he cannot refrain from crying also, and by this means detects himself.—*Voyage du P. Fr. Vincent Marie*, ch. 13. A chacali was kept for ten months in a house where I lived some time. This animal has so great a resemblance to the fox in size, figure, and colour, that most travellers are at first deceived with it. The greatest difference between them is in the head, the chacali having a head like a shepherd's dog with a long muzzle, and in the hair, which is coarse, like that of the wolf. Its colour is also similar to that of the wolf; and it sends forth a stench, which infects every thing it touches. . . . This animal is extremely bold and voracious. . . . He is not afraid to enter the houses. . . . When he meets a man, instead of flying instantly, like other animals, he looks at him with as much boldness as if he meant to brave him, and then runs off. He is very mischievous, and always apt to bite, whatever care is taken to soften him by caresses, or by giving him food. The one formerly mentioned, though taken when very young, and reared with as much attention as a favourite dog, was never rendered perfectly tame: he allowed nobody to touch him, and bit every person indiscriminately. He could never be prevented

been called the *yellow*, or *golden wolf*. In Barbary, the East Indies, the Cape of Good Hope, and the other provinces of Africa and Asia, this species seems to have undergone several variations*. In these warm countries, they are large; the hair is rather of a brownish-red than of a fine yellow, and some of them are of different colours†. The species of the jackal is diffused over all Asia, from Armenia as far as Malabar‡, and is likewise found in Arabia, Bar-

from leaping on the table, and carrying off every thing he could lay hold of. All the country of Natolia is crowded with these chacalis. During the night, they make a hideous noise round the villages, not only by barking like dogs, but by a certain sharp cry which is peculiar to them.—*Voyage de Dumont*, tom. iv. p. 29.

* At the Cape of Good Hope there is another kind of jackal, which I think may be considered as specifically different, though there is a very great resemblance between the two. It is the *Canis Mesomelas*, Linn. Gmel. Dr. Shaw has copied the figure of this animal from Schreber's work, and has introduced it into his General Zoology. He there observes that the figure of the jackal given by the count de Buffon, seems, according to Schreber, to be much more nearly allied to this animal, than to the *Canis Auensis*.

The Barbary jackal is also considered as a distinct species. See Pennant and Shaw. W.

† The jackal which the subjects of the king of Comania, near Acra, brought us, was as large as a sheep; but its legs were taller. Its hair was short and spotted, and its paws prodigiously thick in proportion to its body. . . . Its head was also very thick, flat, and broad, and each of its teeth exceeded an inch in length. . . . Its feet are armed with prodigiously strong claws.—*Voyage de Bosman*, p. 331.

‡ In Bengal there are wild dogs, called *jacqueparels*, or *bawling dogs*, whose hair is red. During the night, they go along the banks of the Ganges barking in a hideous manner.

bary*, Mauritania, Guinea†, and the Cape of Good Hope. It seems to be destined to sup-

Their voices and their cries are so various and confused, that a man cannot hear himself speak. They turn not aside when the Moors pass near them. . . . These animals are common in almost all the East India islands. — *Voyage d'Inigo de Biervillas*, prem. part. p. 178. In Madeira there is a kind of wild dog, or rather fox, which the Indians call *nari*, and the Portuguese *adiba*. . . . When I travelled in the night, I heard these animals howling perpetually. — *Lettres Edifiantes, recueil* xii. p. 98. In Guzarat there is a species of wild dog called jackals. — *Relation de Mandelslo, apud Olear*. tom. ii. p. 234. In the Malabar country, I saw a great number of jackales or jackals. I saw them also in the woods of Ceylon. They resemble the fox, particularly in the tail. . . . They are extremely fond of human flesh. . . . They followed our army, and tore up the dead from their graves. . . . In the night, we often heard the dismal cries of these animals, which resembled those of enraged dogs. . . . They cry alternately, as if they answered each other. — *Recueil des Voyages de la Compagnie des Indes Orientales*, tom. vi. p. 980. All the country of Calicut is likewise infested with foxes, (*jackals*) which come during the night into the town, and roam about like dogs. In the gardens and highways, no other noise is to be heard — *Voyage du Fr. Pyrrard*, tom. i. p. 427. The schecale is a kind of wild dog, . . . They are so numerous in the environs of Surat, that we could not hear one another, on account of the great noise they made, crying distinctly *oua, oua, oua*, which approaches to the barking of a dog. This animal is fond of dead bodies. . . . They are likewise frequent in the deserts of Arabia, along the banks of the Tigris and Euphrates, and in Egypt. — *Voyage de la Boulaye le Gouz*, p. 254.

* The deep is of a darker colour than the fox, though near the same bigness. It yelps every night about the gardens and villages, feeding as the dubbah does, upon roots, fruits, and carrion. Mr. Ray supposes it to be the *lupus aureus* of the ancients; though what Oppian describes by that name is

ply that of the wolf ‡, which is wanting, or at least is extremely rare, in all warm countries.

However, as the jackals and adives are found in the same countries, as the species could not be degraded by continuing long in a domestic state, and as there is always a considerable difference both in the size and dispositions of these animals, we shall regard them as distinct species, till it be proved by facts that they intermix and produce together. Our conjecture concerning

larger, and of a much fiercer nature. — *Shaw's Travels*, p. 174.

† In Guinea, and still more commonly in the countries of Acra and Acanbou, there is a very cruel animal, which our people call *jackal*. . . . In the night, they come under the very walls of the fort we have in Acra, in order to carry off from the stables, hogs, sheep, &c. — *Voyage de Bosman*, p. 249, 331. The wild dogs of Congo, called *Mebbia*, are mortal enemies to all kinds of quadrupeds. They differ little from our hounds. They go in packs of thirty, forty, and sometimes in greater numbers. . . . They attack all kinds of animals, and their number generally ensures them of success. They never assail men. — *Voyage du P. Zuchel, cité par Kolbe*, p. 293. The wild dog of the Cape of Good Hope resembles those of Congo described by P. Zuchel, &c. — *Descript. du Cap de Bonne Esperance, par Kolbe*, part iii. p. 48. At the Cape there is an animal which approaches the fox. Gesner and others call it the *cross fox*. The Europeans of the Cape give it the name of *jackal*, and the Hottentots that of *zenlie* or *kentlie*. — *Id. ib.* p. 62.

‡ I remarked, that there are no wolves in Hyrcania, nor in the other provinces of Persia; but that we every where meet with the *chacal*, whose cry is frightful. It is particularly fond of dead bodies, which it tears out of the graves. — *Voyage de Chardin*, tom. ii. p. 29.

the difference of these two species is the better founded, as it seems to accord with the opinion of the ancients. Aristotle, after mentioning the wolf, the fox, and the hyæna, gives some obscure intimations with regard to two other animals of the same genus, the one under the name of the *panther*, and the other under that of *thos*. The translators of Aristotle have rendered *panther* by *lupus canarius*, and *thos* by *lupus cervarius*. From this interpretation it is obvious, that they considered the panther and thos to be animals of the same species. But I demonstrated, under the article *Lynx*, that the *lupus cervarius* of the Latins is not the *thos* of the Greeks. This *lupus cervarius* is the same with the *chaus* of Pliny, and with our lynx, which has not a single character that agrees with the *thos*. Homer, when celebrating the prowess of Ajax, who alone attacked a band of Trojans, in the midst of whom Ulysses found himself engaged, after being wounded, compares him to a lion, who suddenly falls upon a troop of *thos* collected round a stag at bay, disperses, and pursues them, as mean and dastardly animals. The commentator of Homer interprets the word *thos* by *panther*, which, he says, is a kind of weak, timid wolf. Thus the *thos* and panther have been regarded as the same animal by several ancient Greeks. But Aristotle appears to have distinguished them, though he has not assigned to them different characters: “The internal parts of the *thos*,” says he, “are similar to those of the

wolf*. . . . They copulate like dogs†, and produce two, three, or four young, which are born blind. The body and tail of the thos are longer than those of the dog; but, though the former is not so tall, he is extremely nimble, and leaps to a great distance. . . . The lion and thos are enemies‡, because they both feed upon flesh, and must, therefore, dispute about their prey. . . . The thos loves men§, and never attacks them; neither does he seem to be much afraid of them. He fights with the dog and the lion. For this reason the lion and thos are never seen in the same places. The smallest thos are the best. There are two species of them, and some extend them to three." Aristotle says no more on the subject of the thos, and he says still less concerning the panther. It is mentioned only in one passage, namely, in the 35th chapter of the 16th book of his *History of Animals*: "The panther produces four young, which are blind at birth, like the young wolves." From comparing these passages with that of Homer, and those of other Greek authors, it appears to be almost certain, that the thos of Aristotle is the large jackal, and that the panther is the small jackal, or adive. We see that he admits the existence of two species of thos; that he mentions the panther but once, and when treating of the thos: it is therefore pro-

* *Aristot. Hist. Anim. lib. ii. cap. xvii.*

† *Idem, lib. vi. cap. xxxv.*

‡ *Idem, lib. ix. cap. i.*

§ *Idem, lib. ix. cap. xlv.*



e. H. Bell sculp.

JACKAL-ADIVE.

bable, that this panther is the small kind of thos; and this probability becomes almost a certainty from the testimony of Oppian*, who ranks the panther among the number of small animals, such as the cats and dormice.

Hence the thos is the jackal, and the panther the adive: and, whether they constitute two species, or but one, it is certain, that all the ancients have said, with regard to the thos and panther, applies to the jackal and adive, and to no other animals. If we have remained unacquainted with the true meaning of these names till now, it must be ascribed to the ignorance of the translators, and of our modern naturalists.

I here give the figure of a jackal, which seems to be the small jackal or *adive*. The drawing was sent to me from England, under the simple denomination of *jackal*. Mr. Bruce assures me, that the species here represented is common in Barbary, where it is called *thaleb*; and, as the figure has no resemblance to the description we have given of the jackal, I am persuaded that it is the *adive*, or small jackal, which differs from the large kind both in figure and in manners; for the small species may be tamed, and kept in a domestic state; and I never heard that the large jackal was ever rendered domestic.

The skin presented to the king's cabinet by M. Sonnerat under the name of Indian fox, is that of a jackal adive, as may be seen by consulting the figure. Although this was done from a

* Oppian de Venatione, lib. li.

design sent from England, without any description, we constantly descry in this skin the characters of the species, where there are a few marked differences with the adive represented in this volume.

The jackal adive, which is twenty-one inches long, and twenty-three inches ten lines, following the curvature of the body, is rather smaller than the fox, and lighter made. Its head, which is five inches three lines from the end of the nose to the occiput, is long and slender: the muzzle is thin, which gives it a fine countenance. The eyes are large, and the eyelids inclined, the same as in all the foxes.

The colours of this adive are tawny, gray, and white: it is the mixture of these three colours, where the white predominates, which makes the general colour of this animal. The head is tawny mixed with white on the occiput, round the ear, to the cheeks; and browner on the nose and jaws; the edge of the eyes is brownish: a stripe goes from the interior angle of the eye, which enlarges at its corner, and extends even to the upper jaw; that which proceeds from the posterior angle is straight, and loses itself in a weak shade on the cheek, under the ear. The end of the nose and the nostrils, the contour of the mouth, and the edge of the eyelids, are black; as well as the long hairs above the eyes and the whiskers, the longest hairs of which measure three inches two lines: the neck, beneath, the upper part of the back, the shoulders, and the thighs, are of a grayish colour, but rather more



LITTLE JACKAL.

tawny on the back and shoulders. The exterior of the legs is of a deep tawny, but pale on the top of the feet. The interior is white and tawny, partly pale.

There are five toes on the fore-feet, of which the first, or thumb, has the nail situated on the wrist: the longest nail measures eight lines. The hind-foot has but four toes, and the nails are smaller, since the longest measures only five lines: the nails are crooked and grooved. The tail is six inches and six lines long: it is straight at its origin, large and tufted lengthwise: it is of a tawny white colour, tending to yellowish-white and to deep brown for more than a third from the tip, with some spots of the same colour on the posterior surface: the hairs are twenty-two lines long.

Though the species of the wolf approaches near to that of the dog, yet the jackal is interposed between them. *The jackal or adive*, as Belon remarks, *is an animal between a wolf and a dog*. With the ferocity of the wolf, he possesses a portion of the familiarity of the dog. His voice is a howling mixed with barks and groans *. He is more clamorous than the dog,

* It is of a fine yellow colour, smaller than a wolf, goes always in packs, and yelps during the whole night. . . . It is so voracious and so complete a thief, that it carries off not only what is good to eat, but hats, shoes, bridles, and every thing it can lay hold of. — *Obs. de Belon*, p. 163. Jackal pene omnem orientem inhabitat; bestia astuta, audax, et furacissima est. . . . Interdiu circa montes latet, noctu pervigil et vagus est; catervatim prædatum excurrit in rura et pagos. . . . Ululatum noctu edunt execrabilem ejulatum humano

and more voracious than the wolf. He never goes alone, but always in packs of twenty, thirty, or forty. They assemble every evening for the purposes of war and of hunting. They feed upon small animals, and render themselves formidable to the larger species by their numbers. They attack every kind of cattle and poultry almost in the sight of men. They enter with insolence and boldness into the sheep-folds, the stables, and the cow-houses; and, when they find nothing better, they devour the leather of the harnessing, boots, and shoes, and carry off what they have not time to swallow. When live prey fails them, they dig up the bodies of men from their graves. The inhabitants are obliged to stick the earth of their sepulchres full of large spines, in order to prevent these animals from scraping and digging; for a thickness of several feet of earth is not sufficient to prevent them from accomplishing their purpose*. They go in packs, accompany this ex-

non dissimilem, quem interdum vox latrantium quasi canum interstrepit: unigue inclamanti omnes acclamant, quotquot vocem e longinquo audiunt. — *Koempfer, Amenit. Exotic* p. 413. About the canal of the Black Sea, there are many siacalles, or wild dogs, which resemble foxes, particularly in their muzzle. It is thought that they are engendered between wolves and dogs. In the evening and night they make frightful howlings. . . . They are very mischievous, and as dangerous as wolves. — *Voyage de Corneille le Brun*, p. 56.

* The adives are very fond of putrid bodies, and particularly of human bodies. When the Christians inter any person in the fields, they make a very deep pit: but even this

humation with mournful cries, and, when once accustomed to human bodies, they never fail to frequent the churchyards, to follow armies, and to attend the caravans. They may be considered as the ravens among quadrupeds. The most putrid flesh does not disgust them. Their appetite is so perpetual, and so vehement, that the driest leather, skins, tallow, and even the ordure of animals, are equally welcome to them. The hyæna has the same taste for putrid flesh: it likewise digs dead bodies out of their graves; and, from this practice, these animals, though very different from each other, have often been confounded. The hyæna is a solitary, silent, savage animal, which, though much stronger than the jackal, is less troublesome, and contents itself with devouring the dead, without disturbing the living. But all travellers complain of the cries, the robberies, and the gluttony of the jackal *, which unites the impudence of the dog

precaution is insufficient, unless the earth be beat hard, and mixed with stones and spines, which wound the animals, and prevent them from digging farther. In the Arabian language, the name *adive* signifies a *wolf*. Its figure, its hair, and its voracity, are analogous to this name; but its size, its familiarity, and its stupidity, convey a different idea of it. — *Voyage du P. Fr. Vincent Marie*, c. xiii.

* Jackals are in so great plenty about the gardens, that they pass in numbers, like a pack of hounds in full cry, every evening, giving not only disturbance by their noise, but making free with the poultry, and other provisions, if very good care is not taken to keep them out of their reach. — *Russel's Natural History of Aleppo*. Around Mount Caucasus there are many jackals. This animal resembles the fox. He digs dead bodies out of their graves, and devours animals and car-

with the cowardice of the wolf, and, participating of the nature of each, seems to be an odious creature, composed of all the bad qualities of both *.

tion. In the East, the dead are interred without coffins, or clothes of any kind. I have often seen large stones rolled upon graves, to prevent these animals from devouring the bodies. Mingrelia is infested with jackals. They frequently surround the houses, and make dreadful howlings: but, what is worse, they make great havock among the cattle and horses. — *Voyage de Chardin*, p. 76.

* Professor Pallas has given a very accurate description of the jackal, which the editor has taken from Dr. Shaw's General Zoology, as a valuable addition to Buffon's account of this animal.

“ In external figure, the jackal resembles the wolf more than the fox. It is also larger, and stands higher on its legs than the fox. The head is of a fox-red above, mixed with ash-gray hairs, which have each a blackish ring and tip: the upper lip is white on each side the nose, and the throat is of the same colour: the whiskers, the long hairs on the chin, and those above the eyes, which are five in number, are black: the ears are fox-red externally, and white internally: the neck and back are all over gray-yellow, and both, but especially the latter, are dashed with a shade of dusky, owing to the tips of the long hairs on those parts. The under parts of the body and the legs are of a reddish-yellow, but the shoulders and thighs are externally of a fox-red: the claws are black; the thumb claw stands higher than in the dog, and is crooked: the tail is straight, somewhat longer and more hairy than in the wolf, and is of a grayish-yellow, more inclining to fox-red towards the end; the long hairs have black tips, and consequently the tip of the tail appears black. The hair of the jackal is coarser and stronger than that of the wolf, and is longest on the shoulders and tail, where it measures four inches: on the neck and back it is shorter by an inch: between the hairs is situated a woolly fur of a gray colour. The four middle front teeth are of a truncated form,

or, if cut off, flat, not perceptibly notched or indented : the two exterior larger ones in the upper jaw are somewhat carinated, in the lower rounded : the side or canine teeth in the upper jaw are somewhat larger than in the under : the grinders are six on each side, the first being the smallest, and of a conical shape ; the next grinders, to the number of two in the upper, and three in the lower, are gradually larger, and divided into three points : the fourth of the upper jaw and the fifth of the under are the largest, and have two points : the remaining ones stand deeper in the jaw, or more inwards, and are smaller than in the preceding ; the tongue has on each side a border or row of small verrucæ, or warts."

W.

THE ISATIS, OR ARCTIC DOG*.

IF a number of resemblances, joined to a perfect conformity of internal parts, were sufficient to constitute unity of species, the wolf, the fox, and the dog, would form but one; for the resemblances are more numerous than the dif-

CHARACTER SPECIFICUS.

CANIS LAGOPUS. C. cauda recta, palmis plantisque pilosissimis. — *Linn. Syst. Nat. Emend.* i. p. 75. — *Erxleb. Mamm.* p. 568.

Canis cauda recta, apice unicolore. — *Schreb.* iii. p. 262, pl. 93.

Canis hieme albus, æstate ex cinereo cærulescens. — *Brisson. Quadr.* p. 174.

* **VULPES ALBA.** — *Aldrov. Digit.* p. 222, fig. mediocr. — *Johnst. Quadr.* p. 133.

VULPES CÆRULESCENS. — *Faun. Suec.* p. 14.

L'ISATIS. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 191, pl. 17.

ARCTIC FOX. — *Forster, Phil. Trans.* vol. lxxii. p. 370. — *Penn. Hist. Quadr.* i. p. 235, pl. 52. — *Shaw's Gen. Zool.* i. p. 327.

HABITAT

in omne mare glaciale frequentissimis, etiam in America boreali, in aquis montibus, non in silvis.



ISATIS.

The ears are almost round. He has five toes and five claws on the fore-feet, and only four on those behind. The penis of the male is scarcely so thick as a goose quill. The testicles are as large as almonds, and are so concealed with the hair, that it is difficult to perceive them. The hair over the whole body is about two inches long, smooth, bushy, and soft as wool. The nostrils and under lip are naked, and the skin of these parts is black.

In both male and female, the stomach, viscera, intestines, and spermatic vessels, are similar to those of the dog: there is even a bone in the penis of the male, and the whole skeleton resembles that of a fox.

The voice of the isatis partakes of the barking of a dog and the yelping of a fox. The merchants who deal in furs distinguish two kinds of isatis, the one white, and the other of a bluish ash-colour. The latter are most esteemed, and their price advances in proportion to their blueness or brownness. This difference of colour is not sufficient to constitute a difference of species; for M. Gmelin was assured, by the most experienced hunters, that, in the same litter, some of the young are white, and others ash-coloured.

The isatis is an animal peculiar to the northern regions. He prefers the coasts of the Frozen Sea, and the banks of the rivers which fall into it. He loves open countries, and never frequents the woods. He is found in the coldest and most naked mountains of Norway, Lapland,

Siberia, and Iceland *. These animals copulate in the month of March; and, their organs of generation being formed like those of the dog, they cannot separate for some time. Their rutting season lasts fifteen days, or three weeks, during which they are always in the open air; and afterwards they retire to their holes, which are narrow, very deep, and have several entries. They keep their holes clean, and make beds of moss in them. The time of gestation, like that of the bitch, is about nine weeks. The females bring forth about the end of June or beginning of May, and generally produce six, seven, or eight at a litter †. Those which are to be white, are yellowish at birth, and those which are to be of a bluish ash-colour, are blackish, and their hair is then very short. The mother suckles and attends them in the hole during five or six weeks; after which, she makes them go out, and brings them victuals. In the month of September, their hair is more than half an inch long. At this period, those which are to be white, are almost entirely so, except a brown band along the back, and another across the

* It is probably by sailing on boards of ice that the foxes have found their way into Iceland, where they are very numerous. Some of them are black; but they are commonly gray or blue in summer, and white in winter; in which last season their fur is best. — *Anderson's Nat. Hist. of Iceland*, tom. i. p. 56.

† M. Gmelin says, from the testimony of hunters, that these animals sometimes produce twenty or twenty-five at one litter. But this fact is extremely suspicious.

shoulders. It is then that the isatis is called the *cross fox* *. But this brown cross disappears before winter, when they are entirely white, and their hair more than two inches in length. About the month of May, the hair begins to fall off, and the moulting is finished in July : hence the fur is good in winter only.

The isatis lives upon rats, hares, and birds ; and, in seizing them, he uses as much address as the fox. He swims across lakes in quest of the nests of ducks and of geese, and eats the eggs and the young. In these cold and desert regions, he has no enemy but the glutton, who lies in ambush for him.

As the wolf, the fox, the glutton, and the other animals which inhabit the northern regions of Europe and Asia, have passed from the one continent to the other, and are found in America, the isatis ought likewise to be found there ; and I presume that the silver-gray fox of North America, of which Catesby † has given a figure, is the isatis, and not a simple variety of the fox ‡.

* From this circumstance, it is probable that the *vulpes crucigera* of Gesner (*Icon. Quad.* p. 190), and of Rzaczinski (*Hist. Nat. Pol.* p. 231), is the same animal with the isatis.

† Nat. Hist. of Carolina, tom. ii. fig. p. 78.

‡ The following addition to Buffon's account of this fox, is extracted from Pennant's Arctic Zoology, i. p. 42, No. 10.

"These animals," says Mr. Pennant, "are found only in the arctic regions, a few degrees within and without the polar circle. They inhabit Spitzbergen, Iceland, and Greenland : are only migratory in Hudson's Bay, once in four or five

In a letter from London, dated the 19th day of February, 1768, Mr. Colinson communicates the following notice:

years: are found again in Bering's and Copper Isle, next to it, but not beyond: in Kamtschatka, and all the countries bordering on the Frozen Sea, which seems their great residence, comprehending a woodless track of heath land, generally from seventy to sixty-five degrees latitude. They abound in Nova Zembla: are found in Cherry Island, midway between Finmark and Spitzbergen; to which they must have been brought on islands of ice; for it lies above four degrees north of the first, and three south of the last: and lastly in the bare mountains between Lapland and Norway.

"They are the hardest of animals, and even in Spitzbergen and Nova Zembla prowl for prey during the severity of winter. They live on the young wild geese, and all kinds of water-fowl; on their eggs; on hares, or any lesser animals; and in Greenland (through necessity) on berries, shell-fish, or whatsoever the sea throws up. But in the north of Asia, and in Lapland, their principal food is the leming (a species of mouse). The arctic foxes of those regions are as migratory as those little animals; and when the last make their great migrations, the former pursue them in vast troops. But such removals are not only uncertain, but long: dependent on those of the leming. The foxes will, at times, desert their native countries for three or four years, probably as long as they can find any prey. The people of Jenesia imagine that the wanderers from their parts go to the banks of the Oby. Those found in Bering's and Copper Isles were probably brought from the Asiatic side on floating ice: Steller having seen in the remoter islands only the black and brown foxes: and the same only on the continent of America. They burrow in the earth, and form holes many feet in length; strewing the bottom with moss. But in Spitzbergen and Greenland, where the ground is eternally frozen, they live in the cliffs (clefts) of rocks; two or three inhabit the same hole. They swim well, and often cross from island to

“ My friend M. Paul Demidorff, a Russian, who is an admirer of your works, sends you a drawing of an undescribed animal, called *cossac*. It was brought from the vast deserts of Tartary, situated between the rivers Jaïck, Emba, and the sources of the Irtysh. These cossacs are so numerous in that part of the country, that the

island in search of prey. They bark like dogs; for which reason the Russians call them *pefzi*.

“ They are tame and inoffensive animals, and so simple, that there are instances of their standing by when the trap was baiting, and instantly after putting their heads into it. They are killed for the sake of their skins, both in Asia and Hudson’s Bay: the fur is light and warm, but not durable. Mr. Graham informed me, that they have appeared in such numbers about the fort, that he has taken, in different ways, four hundred from December to March. He likewise assured me that the tips of their tails are always black: those of the common foxes are always white: and that he never could trace the breeding places of the former.

“ The Greenlanders take them either in pit-falls dug in the snow, and baited with the capelin fish, or in springs made with whalebone laid over a hole made in the snow, strewed over at bottom with the same kind of fish; or in traps made like little huts, with flat stones, with a broad one by way of door, which falls down (by means of a string baited on the inside with a piece of flesh) whenever the fox enters and pulls at it. The Greenlanders preserve the skin for traffic; and, in cases of necessity, eat the flesh. They also make buttons of the skins; and split the tendons, and make use of them instead of thread. The blue furs are much more esteemed than the white.”

Stell^{O.}er, who resided for some time in the midst of these animals, has given a very particular, though apparently overstrained^{h.} account of their manners.

Tartars transport annually 50,000 of their skins to Oremburgh, from whence they are carried to Siberia and Turkey. From the point of the muzzle to the origin of the tail, this animal is about one foot and eight inches in length; and his tail is ten inches long.

“ The shape of the head, the mild aspect, and the barking of the cossac, seem to bring him near to the dog. His tail, however, and his fine soft fur, make him approach the fox. His blood is ardent, and his breath has a disagreeable odour, like that of the jackal and wolf.”

From the drawing, and still more from the short descriptions of M. Demidorff and M. Gmelin, this animal appears to be the isatis; and, for that reason, I have caused it to be engraven.

ANONYMOUS ANIMAL*.

WE here give the figure of an undescribed animal, the drawing of which was made by the chevalier Bruce, who permitted me to copy it. The animal, which we shall call *anonymous*, till we learn its real name, has some similarities to the hare, and others to the squirrel. Mr. Bruce gave the following account of it in writing.

“ In Lybia, on the south side of the lake formerly called *Palus Tritonides*, there is a very singular animal, from nine to ten inches long,

* CHARACTER SPECIFICUS.

CANIS CERDO. — C. cauda recta, corpore pallido, auriculis roseis erectis prælongis. — *Linn. Syst. Nat. Gmel.* i. p. 75. — *Skioldebrand Act. ac Succ. ad ann.* 1777. — *Trjm.* 3, *Art.* 7, pl. 6.

CANIS? ZERDA. C. albida, cauda recta, auribus amplissimis erectis intus roseis. — *Shaw's Gen. Zool.* i. p. 332.

ANIMAL ANONYME. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 203, pl. 15.

ZERDA. — *Penn. Hist. Quadr.* i. p. 267, pl. 53.

FENNEC. — *Bruce's Trav.* v. p. 128. — *Shaw's Gen. Zool.* i. p. 332, pl. 80.

HABITAT

in magno Africae deserto sabuloso Saara.

W.



Edell Sculp.

ANONYMOUS ANIMAL.

with ears nearly as long as the half of the body, and proportionally broad, a circumstance which takes place in no other quadrupéd, except the long-eared bat. Its muzzle resembles that of the fox; and yet it seems to approach nearer to that of the squirrel. It lives on the palm trees, of which it eats the fruit. It has short retractile claws, and is a very beautiful creature. Its colour is white mixed with a little gray and a bright yellow. The inside of the ears is naked in the middle only. They are covered with brown hair mingled with yellow, and garnished within with large white hairs. The end of the nose is black, the tail yellow, and black at the point. The tail is pretty long, but of a different form from that of the squirrel; and all the hair, both on the body and tail, is very soft*."

* Some years after M. de Buffon received the above description, Mr. Bruce published his *Travels into Abyssinia*; in which we find a particular account of this singular animal, under the name of fennec. The observations which Mr. Bruce made on the manners and appearance of the fennec, I shall here subjoin in his own words.

Speaking of a live specimen at that time in his possession, Mr. Bruce says:

" Though his favourite food seemed to be dates, or any sweet fruit, yet I observed he was very fond of eggs, and small bird's eggs were first brought him, which he devoured with great avidity; but he did not seem to know how to manage that of a hen, but, when broke for him, he ate it with the same avidity as the others. When he was hungry, he would eat bread, especially with honey or sugar. It was very observable that a bird, whether confined in a cage near him, or flying across the room, engrossed his whole attention. He followed it with his eyes wherever it went, nor

was he, at this time, to be diverted by placing biscuit before him; and it was obvious, by the great interest he seemed to take in its motions, that he was accustomed to watch for victories over it, either for his pleasure or his food. He seemed very much alarmed at the approach of a cat, and endeavoured to hide himself, but showed no symptom of preparing for any defence. I never heard he had any voice: he suffered himself, not without some difficulty, to be handled in the day, when he seemed rather inclined to sleep, but was exceedingly unquiet and restless as soon as night came, and always endeavouring his escape; and though he did not attempt the wire, yet, with his sharp teeth, he very soon mastered the wood of any common bird-cage.

“ From the snout to the anus he was about ten inches long, his tail five and a quarter, near an inch on the tip of it was black. From the point of his fore-shoulder, to the point of his fore-toe, was two inches and seven eighths. He was two inches and a half from his occiput to the point of his nose, the length of his ears three inches and three eighths. These were doubled, and had a plait on the bottom on the outside; the borders of his ears on the inside were thick covered with soft white hair, but the middle part was bare, and of a pink or rose colour. They were about an inch and a half broad, and the cavities within were very large. It was very difficult to measure these, for he was very impatient at having his ears touched, and always kept them erect, unless when terrified by a cat. The pupil of the eye was large and black, surrounded by a deep blue iris. He had long thick mustaches; and the tip of his nose very sharp, black, and polished. His upper jaw reached beyond the lower, and had four grinders on each side of the mouth. It had six fore-teeth in each jaw: those in the under jaw are smaller than the upper: the canine teeth are long, large, and exceedingly pointed: his legs are small, and his feet very broad: he has four toes, armed with crooked, black, sharp claws; those on his fore-feet more crooked and sharp than behind. All his body is nearly of a dirty white, bordering on cream-colour; the hair of his belly rather whiter, softer, and longer than the rest, and on it a number of paps, but he was so impatient it was impossible to count them. He very

seldom extended or stiffened his tail, the hair of which was harder. He had a very sly and wily appearance. But as he is a solitary animal, and not gregarious; as he has no particular mark of feelings about him, no shift or particular cunning which might occasion Solomon to qualify him as wise; as he builds his nest upon trees, and not on the rocks; he cannot be the saphan of the Scripture, as some, both Jews and Arabians, not sufficiently attentive to the qualities attributed to that animal, have nevertheless erroneously imagined."

Sonnini thinks, from what Bruce has said of this animal, that it cannot be, as Pennant supposes, of the dog kind. But it must be observed that Pennant, although he placed it at the end of the genus *canis*, placed it there with diffidence; and if we consider its figure, which Pennant justly observes has all the appearance of the *vulpine*, and refer to the remark of the same author, who says that it "barks like a dog, but much shriller, and that chiefly in the night;" we have full as much reason to leave it in its present situation, as to remove it elsewhere.

THE GLUTTON*.

THE glutton, with his gross body and short legs, is nearly of the figure of the badger; but he is double the size. His head is short, his eyes

* CHARACTER SPECIFICUS †.

URSUS GULO. U. cauda concolore, corpore rufesco, medio dorsi nigro. — *Linn. Syst. Nat. Gmel.* i. p. 101 — *Schreb.* iii. p. 525, pl. 141. — *Erlch. Mamm.* p. 177.

MUSTELA GULO. M. pedibus fiss., corpore rufesco, medio dorsi nigro. — *Linn. Syst. Nat. Gmel.* ed. xii. p. 67.

GULO. — *Gesn. Quadr.* p. 623, fig. mva — *Aldrov. Digit.* p. 178. — *Jonst. Quadr.* p. 131, p. 57, fig. mala.

ROSSOMAKA. — *Nieremb. Hist. Nat.* p. 188. — *Bell's Travels*, i. p. 221.

JARF. — *Funn. Succ.* No. 14. — *Genberg, Act. Stockh.* 1773, p. 222, pl. 7, 8.

LE GLOUTON — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 203, pl. 18.

GLUTTON. — *Penn. Hist. Quadr.* ii. p. 10. — *Shaw's Gen. Zool.* i. p. 460, pl. 154.

HABITAT

in Americæ, Asiæ et Europæ terris quam maxime borealibus, rarius in Polonia et Cuionia, rarissime in Germania; in montosis præsertim et vastissimis silvis.

W.

G'ou.on in French; jerff in Swedish; ulfkrass in German;

† For the generic character, see Bear.



A. B. S. S. S.

GLUTTON

small, his teeth very strong, his body squat, and his tail rather short than long, and well furnished with hair at the extremity. He is black on the back, and of a brownish-red on the flanks. His fur is exceedingly beautiful, and in great request. He is common in Lapland, and in all the countries bordering on the Northern Ocean, both in Europe and Asia. In Canada, and other parts of North America, he is found under the name of *carcajou*. It is probable, that the animal found near Hudson's Bay, called *quick-hatch*, or *wolverene*, by Mr. Edwards*, is the same with the Canadian *carcajou*, and the European glutton. It is also probable, that the animal mentioned by Fernandez, under the name of *tepeytlzcuitli*, or *mountain dog*, is the glutton, whose species has been diffused as far as the desert mountains of New Spain †.

Olaus Magnus seems to be the first author who takes notice of this animal. He says ‡, that it is of the size of a large dog; that it has the ears and face of a cat, strong feet and claws, long, brown, bushy hair, and a rough tail like that of the fox, but shorter. The glutton, according to Schoeffer§, has a round head, strong

rosemack in Slavonian; *carcajou* in Canada; *quincajou* in other parts of North America.

* Edwards's History of Birds, p. 103.

† Animal est parvi canis magnitudine audacissimumque; aggreditur enim cervos et quandoque etiam interficit; corpus universum nigrum: pectus ac collum candens, pili longi, et cauda longa, et caninum quoque caput, unde nomen.—*Fernandez, Hist. Anim. Nov. Hisp.* p. 7, cap. 2N.

‡ Olaus Magnus de Gent. Septent, p. 138.

§ Hist. de la Lapponie, par J. Schoeffer, p. 314.

sharp teeth, like those of the wolf, black hair, and a thick body and short legs, like those of the otter. La Hontan*, who first mentioned the carcajou of North America, remarks, "Figure to yourself a double-sized badger, which is the most perfect idea I can give you of this animal." According to Sarrazin†, who probably had seen only young ones, the carcajous exceed not two feet in length, and their tail is eight inches. "They have," says he, "a very thick short head, small eyes, and very strong jaws, furnished with thirty-two sharp teeth. The quick-hatch of Edwards‡, which appears to be the same animal, was, this author remarks, double the size of the fox: its back is arched, its head low, its legs short, its belly almost trailing on the ground, and its tail of a middling length, and bushy toward the extremity. All these authors agree, that this animal is to be found only in the northern regions of Europe, Asia, and America. M. Gmelin§ is the only writer who seems to think that the glutton travels into warm countries. But this fact appears to be very suspicious, if not altogether false. Gmelin, like some other naturalists||, has perhaps confounded the hyæna of the

* Voyage de la Hontan, tom. i. p. 96.

† Hist de l'Acad, des Sciences, ann. 1713, p. 14.

‡ Edwards's History of Birds, p. 103.

§ The glutton is the only animal, which, like man, can live equally well under the Line and under the Pole. He is every where, to be seen: he runs from south to north, and from north to south, provided he can find any thing to eat. *Voyage de Gmelin*, tom. iii. p. 492.

|| Briss. Regn. Anim. p. 235.

south with the glutton of the north, which, though they resemble each other in natural dispositions, and particularly in voraciousness, are very different animals.

The legs of the glutton are not made for running; he even walks slow. But this defect of nimbleness he supplies with cunning. He lies in wait for animals as they pass. He climbs upon trees, in order to dart upon his prey, and seize it with advantage. He throws himself down upon elks and rein-deer, and fixes so firmly on their bodies with his claws and teeth, that nothing can remove him. In vain do the poor victims fly, and rub themselves against trees. The enemy, attached to their crupper or neck, continues to suck their blood, to enlarge the wound, and to devour them gradually, and with equal voracity, till they fall down*. It is inconceivable how long the glutton can eat, and how much flesh he can devour at a meal.

What is related by travellers concerning this animal, is perhaps exaggerated. But, though

* The glutton is a carnivorous animal, somewhat less than the wolf. His hair is coarse, long, and of a brown colour, approaching to black, especially on the back. He climbs upon a tree to watch for his prey; and, when any animal passes, he springs down upon its back, fixes himself firmly with his claws, and continues to gnaw with his teeth, till the poor animal, after many fruitless efforts to get rid of so troublesome a guest, at last falls down, and becomes a victim to this crafty enemy. Three strong greyhounds are necessary to kill the glutton. The Russians use the glutton's skin for muffs, and borders to their caps. — *Relation de la Grande Tartarie*, p. 8.

a great part of their narrations were rejected, what remains * is sufficient to convince us, that the glutton is much more voracious than any of our carnivorous animals: from this circumstance he has been called the *vulture of quadrupeds*. More insatiable and rapacious than the wolf, if endowed with equal agility, the glutton would destroy all the other animals. But he moves so heavily, that the only animal he is able to overtake in the course is the beaver, whose cabins he sometimes attacks, and devours the whole, unless they quickly take to the water†; for the beaver outstrips him in swimming. When he perceives that his prey has escaped, he seizes the fishes; and when he can find no living creature to destroy, he goes in quest of the dead, whom he digs up from their graves, and devours with avidity.

Though the glutton employs considerable art

* Hoc animal voracissimum est; reperto namque cadavere, tantum vorat, ut violento cibo corpus instar tympani extendatur; inventaque angustia inter arbores se stringit ut violentius egerat: sicque extenuatum revertitur ad cadaver, et ad summum usque repiatur, iterumque se stringit angustia priore, &c.—*Olai Magni Hist. de Gent. Sept.* p. 138.

† The carcajou is a small animal, but very strong and fierce. Though carnivorous, he is so slow and heavy, that he may be said rather to trail upon the snow, than to walk. The beaver is the only animal he is able to overtake; and this exploit he can perform in summer only, when the beavers are out of their cabins: but, in winter, he endeavours to demolish their cabins, and seize the inhabitants, which he is seldom able to accomplish; because the beavers secure their retreat under the ice.—*Hist. de l'Acad. des Sciences*, ann. 1713, p. 14.

and address in seizing other animals, he seems to possess no other talents but those which relate to appetite. It would appear that he even wants the common instinct of self-preservation. He allows himself to be approached by men, or comes up to them*, without betraying the

* The workmen perceived at a distance an animal approaching with slow and solemn steps. Some of them imagined it to be a bear, and others a glutton. They advanced, and found that it was a glutton. Having given it some severe blows with a cudgel, they seized it alive, and brought it to me. After the many reports I had for several years heard from the Siberian hunters, concerning the address of the glutton in seizing other animals, and supplying, by cunning, that swiftness which Nature has denied him, and in avoiding the snares of men, I was greatly surprised to see this one come as deliberately up to us, as if he had been in quest of his own destruction. Ysbrandt-Ides calls the glutton a mischievous animal, which lives on flesh only. "He is accustomed," this author remarks, "to conceal himself in the trees, and to lie in ambush, like the lynx, till a stag, a reindeer, a roebuck, a hare, &c., passes below, and then darts down, like an arrow, upon the animal, sinks his teeth into its body, and gnaws the flesh till it expires; after which he devours it at his ease, and swallows both the hair and the skin. A way-wode, who kept a glutton for his pleasure, threw it one day into the water, and let loose two dogs at it. But the glutton soon fixed upon the head of one of the dogs, and kept it under the water till the animal was suffocated." . . . The address employed by the glutton, continues M. Gmelin, in seizing animals, is confirmed by all the hunters. . . . Though he devours all kinds of animals, whether alive or dead, he prefers the rein-deer. . . . He watches large animals like a robber on the highways, or he surprises them while asleep. . . . He goes in quest of the snares laid by the hunters for different species of animals; but he never allows himself to be entrapped. . . . The hunters of the blue and white foxes

smallest apprehension. This indifference, which seems to be the effect of imbecility, proceeds, perhaps, from a different cause. It is certain, that the glutton is not stupid, since he finds means to satisfy his appetite, which is always vehement and pressing. Neither is he deficient in courage, since he indiscriminately attacks all animals he meets with, and betrays no symptoms of fear at the approach of man. Hence, if he wants attention to himself, it proceeds not from indifference to his own preservation, but from the habit of security. As he lives in a country which is almost desert, he seldom sees men, who are his only enemies. Every time he tries his strength with other animals, he finds himself their superior. He goes about with perfect confidence, and never discovers the smallest mark of fear, which always supposes some dolorous event, some experience of weakness. Of this we have an example in the lion, who never turns away from man, unless he has experienced the force of his arms: and the glutton, trailing

(isatis), which frequent the coasts of the Frozen Sea, complain much of the mischief done them by the glutton. . . . With much propriety they call him the *glutton*; for the quantity he eats is incredible. Though I frequently inquired of professed hunters, I never heard that this animal, when gorged, squeezed himself between two close trees, in order to force out the contents of his stomach, and to make room for a fresh gratification of his insatiable appetite. This appears to have been the fable of a naturalist, or the fiction of a painter. — *Voyage de Gmelin*, tom. iii. p. 492. *Nota*, Olaus first put this fable in writing, and Gesner copied the figure of it, which had been designed by a painter.

along the snows of his desert climate, remains always in perfect safety, and reigns, like the lion, not so much by his own strength, as by the weakness of the animals around him.

The isatis is not so strong, but much more nimble than the glutton, whom it serves as a provider. The glutton follows the isatis in the chase, and often carries off the whole, or a part of its prey; for, when the glutton arrives, the isatis, to avoid its own destruction, flies off with precipitation. Both these animals dig holes in the earth; but their other manners are different. The isatis often go in packs; but the glutton travels alone, or sometimes with his female. The male and female are generally found together in the same hole. Even the most courageous dogs* fear to approach, or to combat the glutton. He defends himself with his claws and feet, with which he inflicts mortal wounds. But, as he cannot escape by flight, he is easily dispatched by the hunters.

The flesh of the glutton, like that of all rapacious animals, is very bad†. He is hunted only

* Via vix conceditur ut a canibus apprehendatur, cum ungulas, dentesque adeo acutos habeat, ut ejus congressum formident canes qui in ferocissimos lupos vires suas extendere solent. — *Olai Mag. Hist. de Gent. Sept.* p. 139.

† Caro hujus animalis omnino inutilis est ad humanam escam, sed pellis multum commoda ac pretiosa. Candet enim fuscata nigredine instar panni damasceni diversis ornata figuris, atque pulchrior in aspectu redditur, quo artificum diligentia et industria colorum conformitate in quorūque vestium genere fuerit coadunata. — *Olai Mag. Hist. de Gent. Sept.* p. 139.

for his skin, which makes a most magnificent fur*. It is only excelled by the furs of the sable and black fox; and, when well chosen, and properly prepared, it is said to have a finer lustre than any other, and, upon a beautiful black ground-colour, to reflect and variegate the light, like damask silk †.

The figure of the glutton was drawn from the life. This animal was sent to me alive from the most northern parts of Russia; and yet he lived more than eighteen months at Paris. He was so tame, that he discovered no ferocity, and did not injure any person. His voracity has been as much exaggerated as his cruelty. He indeed ate a great deal; but, when deprived of food, he was not importunate. The animal is very well represented in the plate; but we shall likewise add a description of him. He is two feet two inches long, from the point of the nose to the origin of the tail. The muzzle, and as far as the

* The glutton is said to be an animal peculiar to the north. . . . It is of a blackish colour; and the hair is as long as that of the fox, but much finer and softer; which renders the skins very precious even in Sweden. — *Appollon. Megabeni Hist. Gulonis.*

† The gluttons are common in Lapland. . . . The skin is extremely black, and the hair reflects a kind of shining whiteness, like the flowered satins and damasks. Some people compare it to the skin of the sable, except that the hair of the latter is softer and more delicate. This animal lives both on the earth and in the water, like the otters. . . . But the glutton is much larger, and more voracious than the otter He not only hunts wild and domestic animals, but even fishes. — *Hist. de la Lapponie, par Schoeffer, p. 314:*

eyebrows, is black. The eyes are black and small. From the eyebrows to the ears, the hair is a mixture of white and brown. The ears exceed not an inch in length, and the hair on them is short. Below the under jaw, as well as between the fore-feet, the hair is spotted with white. The length of the fore-legs is eleven inches, and that of the hind one foot. The tail, including four inches of hair at its extremity, is eight inches long. The four legs, the tail, the back, as well as the belly, are black. Near the navel is a white spot, and the organs of generation are reddish. The under hair, or down, is white: his fore-feet, from the heel to the extremity of the claws, are three inches nine lines in length. The five claws are very crooked and well separated. The middle claw is an inch and a half long. There are five callosities under the toes; four of them form a kind of semicircle below the foot, the other is on the heel. On the hind feet, there are five claws, nine callosities, and no heel. The breadth of the fore-feet is two inches and a half. The length of the hind-feet is four inches nine lines, and their breadth two inches nine lines. He has six cutting teeth in the upper jaw, of which one on each side is larger than the other four; and five grinders, two of which are much larger than the other three. In the under jaw, he has five grinders, one of which is very thick. There are a few hairs, about two inches long, round the mouth, and above the eyes.

This animal is pretty mild. He avoids water,

and dreads horses, and men dressed in black. He moves by a kind of leaps; and eats pretty voraciously. After taking a full meal, he covers himself in his cage with straw. When drinking, he laps like a dog. He utters no cry. After drinking, with his paws he throws the remainder of the water on his belly. He is almost perpetually in motion. If allowed, he would devour more than four pounds of flesh every day. He eats no bread; and devours his food so voraciously, and almost without chewing, that he is apt to choke himself.

The glutton is common in most of the northern regions of Europe, and even of Asia; but, in Norway, according to Pontoppidan, he is chiefly confined to the diocese of Drontheim. This author remarks, that the skin of the glutton is very valuable; that he is not shot with firearms, to prevent his skin from being damaged; and that the hair is soft, and of a black colour, shaded with brown and yellow *.

We have likewise given the figure of an American animal, a stuffed skin of which was sent to M. Aubry, curate of St. Louis, under the denomination of *carcajou*. But it has no affinity to that animal, which we remarked was the same with our European glutton; for, as its claws are not adapted for tearing prey, but for digging the earth, we consider it as a neighbouring species, or even as a variety, of the badger. When compared with the figure we have given of the

* Pontoppidan's Natural History of Norway.



A. Bell, Sculp.

CARCAJOU.

badger, the resemblance is apparent ; from which it differs, however, by having only four toes on the fore-feet : but the fifth toe, which was apparently wanting, might have been destroyed in this dried skin. In this character, it differs equally from the carcajou and the glutton ; because both of them have five toes on the fore-feet. Hence it is doubtful whether this animal be the true carcajou. We shall here add a description of the stuffed skin, which is very well preserved in the cabinet of M. Aubry. He was assured that it was brought from the country of the Eskimaux. From the end of the muzzle to the origin of the tail, it was two feet two inches long. Though it has a great resemblance to the badger, it differs from him in the colour and quality of the hair, which is softer, longer, and more silky ; and, by this character alone, it approaches to the carcajou, or the glutton of Europe. It is nearly of the colour of the lynx, being grayish-white, with white stripes on the head, but different from those of the badger. The ears are short and white. It has thirty-two teeth, six incisors, two large canine teeth, and four grinders on each side ; but the badger has only six grinders. The hairs on the body, which are commonly four and a half or five inches long, are of four colours ; namely, from the root to near the middle, they are a bright brown, then a bright yellow, then black, till near the point, which is white. The under part of the body is covered with white hairs. On the legs the hair is of a deep brown colour. There are four toes only on the fore-feet, and five

on those behind. The claws of the fore-feet are very large; the longest on the fore-feet are sixteen lines, and the longest on the hind-feet only seven. The trunk of the tail is three inches eight lines in length, and it is terminated and surrounded by long yellow hairs.

I am convinced that the American carcajou is the same animal with the European glutton, or, at least, that it is a species very nearly allied to the glutton. But I must remark, that I committed a mistake, occasioned by a similarity of names, and some natural habits, common to two different animals. I imagined that the kinkajou was the same animal with the carcajou. This error I discovered by seeing two animals, the one at the fair of St. Germain, in 1773, announced by a bill as *an animal unknown to all the naturalists*, which was true. Another, altogether similar, is now alive at Paris, in the possession of M. Chauveau, who brought it from New Spain. We believe it to be the true kinkajou, and have here given a figure of it. M. Chauveau imagined that it might be an acouchi or a coati. He remarks, indeed, that it has neither the long nose nor the annulated tail of the coati; but that it has the same hair, the same members, the same number of toes, and the same canine teeth, which are angular and chamfered on the sides. M. Chauveau acknowledges, that it differs from the coati by its prehensile tail, with which, when descending, it suspends itself, and adheres to every thing it can lay hold of.

“ This animal,” says M. Chauveau, “ never

stretches out his tail, unless when his feet are secure. He employs it with greater dexterity in seizing and bringing to him such things as he cannot otherwise reach. He lies down and sleeps as soon as day appears, and awakes at the approach of night. His vivacity is then extremely great. He climbs with great facility, and searches about continually. He tears every thing he finds, either for amusement or in quest of insects. Were it not for this fault, he might be left at liberty. Even before his arrival in France, he went about freely during the night, and next day he was always found lying in the same place. He may be wakened during the day; but the rays of the sun seem to be extremely incommodious to him. He is caressing, without being tractable: he distinguishes his master alone, whom he follows. He drinks water, coffee, milk, wine, and even brandy; which last, when sugar is added to it, he drinks till he be intoxicated, and continues to be sick for several days. He eats indiscriminately bread, meat, pot-herbs, roots, and fruits. His common food, for a long time, has been bread soaked in milk, fruits, and pot-herbs. He is passionately fond of odours, sugar, and confections.

“ He attacks poultry, and always seizes them under the wing. He seems to drink their blood; for he never devours them. When he has his choice, he prefers a duck to a hen; and yet he is afraid of water. He has different cries: when alone, during the night, he

utters sounds nearly similar to the barking of a dog, and he always commences with sneezing. When he sports, or receives any injury, he cries like a young pigeon. When he threatens, he whistles like a goose; and, when enraged, his cries are loud and confused. He is never in a passion but when hungry. His tongue, which he sometimes thrusts out, is immoderately long. The one in my possession was a female; and it is worthy of remark, that, during the three years she has been in France, she was only once in season, and was then extremely furious."

The following is M. de Sève's Description of a similar Animal, exhibited at the Fair of St. Germain in the Year 1773.

"By its fur, it has a greater resemblance to the otter than to any other animal; but its toes are not connected by membranes. The tail is as long as the body; but that of the otter is only half the length of its body. When walking, the length of the body gives it the air of a polecat. But the tail and figure of the head are different, and the latter has more resemblance to that of the otter. The eye is larger than that of the polecat. The face has some resemblance to that of the small Danish dog. His tongue is long, thin, and smooth. He appears to be of a mild disposition, and licks the hand of any person. Last Lent, when I drew its figure, it was



A Bell Sculp. to

KINCAJOU.

very gentle : but it has been rendered mischievous by being frequently irritated by the populace. At present, it sometimes bites after licking the hand. It is young, and its teeth seem not to be fully formed. It is of a restless disposition, and loves to climb. It often sits on end, scratches itself with its fore-feet like the apes, plays, folds its paws into each other, and performs many other monkey tricks. Like the squirrel, it holds fruits and other food between its two paws. We neither give it flesh nor fish. When irritated, it endeavours to leap upon the person, and its cry has a considerable resemblance to that of a large rat. Its fur has no odour. With great dexterity it hooks with its tail such things as it wants to lay hold of, and frequently hangs by the tail upon such bodies as it meets with. I have remarked, that its toes, which are of a considerable length, spontaneously unite, when it walks or climbs ; and they spread not, like those of other animals, in the action of supporting itself. In fine, this animal, according to the account given by its master, came from the coast of Africa, where it was called *kinkajou*, and the species is said to be rare. This appellation, he supposed, was derived from the name of the island or country which it inhabits, being unable to learn any more from the person who sold it to him. I shall only say, that this *kinkajou*, which is a female, approaches nearer to the otter than to any other quadruped. Its hair is short and thick, mixed with some longer hairs. The hairs of the head, like those of the body and tail, are

of an olive yellowish colour, mingled with gray and brown: and these colours vary according to the light in which they are viewed. The colour of each hair, through its greatest extent, is a grayish-white, and a dusky greenish-yellow at the point. The fur is mixed with other hairs, whose extremity is brown, beside large black hairs interspersed among the rest, which form bands on the sides of the eyes, and extend toward the front, and another band which vanishes near the neck. The eye is very similar to that of the otter, the pupil is small, and the iris is of a reddish colour. The muzzle is blackish-brown, as well as round the eyes. As in small dogs, the end of the nose is flat, and the nostrils are much arched. The teeth are yellow, and thirty-two in number. The canine teeth are very large, the superior crossing the inferior. There are twelve cutting teeth, four canine, and sixteen grinders. The ears are longer than broad, rounded at the points, and covered with short hair, of the same colour with that on the body. The sides, throat, and inside of the legs, are of a golden-yellow colour, which is extremely vivid in some places. The same golden colour prevails on some parts of the head and hind-legs. The belly is grayish-white, tinged in some places with yellow. The tail, which is everywhere covered with hair, is thick at the origin, and gradually tapers to a point at the extremity. When walking, the animal carries its tail horizontally. The under part of the paws is naked; and of a vermilion colour. The claws are white,

hooked, and guttered below. The length of the whole animal is about two feet five inches."

The similarity of the names *kinkajou* and *carcajou* led me, as well as other naturalists, to imagine that they belonged to the same animal: in the following passage from Denis, formerly quoted in part only, where he tells us, that the kinkajou, which I then apprehended to be the carcajou, resembled the cat, I thought this traveller had been deceived; because all other travellers agree in making the figure of the carcajou similar to that of the glutton:

"The kinkajou," says Denis, "has some resemblance to the cat with brownish-red hair. Its tail is long, and erected on its back in two or three folds. It has claws, and climbs trees, where it lies in wait along the branches to dart down on its prey. In this manner it seizes the orignal, invests him with its tail, and gnaws his neck till he falls. Notwithstanding the swiftness of the orignal, and the force with which he rubs against the trees and brushwood, the kinkajou never quits its hold; but if he can reach the water he is saved, because the kinkajou is then obliged to separate from him. Four years ago, a kinkajou attacked one of my heifers, and cut its throat. The kinkajous are hunted by the foxes. They go in quest of the kinkajou when he lies in wait for the orignal, and never fail to carry him off*."

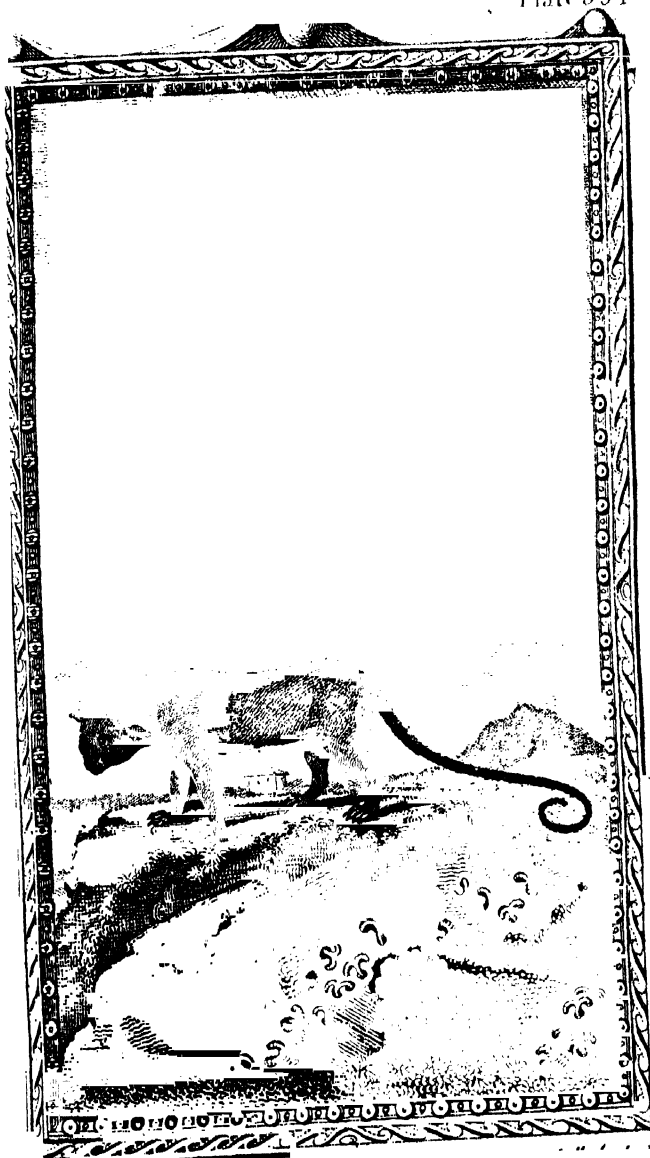
* Descript. Geogr. et Histor. des Côtes de l'Amerique Septent. par M. Denis, tom. ii. p. 327.

These facts correspond so well with the figure and description we have given of this animal, that we may presume they relate to the same, and that the carcajou and kinkajou are two distinct species, which have nothing in common, except their darting upon the original and other quadrupeds, in order to drink their blood.

We formerly remarked, that the kinkajou was found in the mountains of New Spain: but he is likewise found in those of Jamaica, where the natives call him *poto*. Mr. Colinson sent me a figure of this *poto*, or kinkajou, which I have inserted together with the following notice:

“ The body of this animal,” says Mr. Colinson, “ is red, mixed with ash-colour. The hair is short, but very thick, the head rounded, the muzzle short, naked, and blackish: the eyes are brown, the ears short and round, and the hairs round the mouth are long; but, as they lie flat on the muzzle, they do not form whiskers. The tongue is narrow and long, and the animal often thrusts it three or four inches out of his mouth. The tail is of one uniform colour, and gradually tapers to a point: it is bended upwards when the animal walks, and has the prehensile faculty. The length of the creature is about fifteen inches, and that of the tail seventeen.”

“ This animal was taken in the mountains of Jamaica. He is mild, and may be handled without danger. He is drowsy during the day, and extremely vivacious in the night. He differs much from every other quadruped. His tongue is not so rough as that of the cat, or other



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POTOT.

animals of the *viverra* genus, to which he is related by the form of the head and claws. Round his mouth are many curled, soft hairs, from two to three inches long. The ears are situated nearly opposite to the eyes. When he sleeps, he rolls himself up into a ball, like the hedgehog, with his fore-feet under his cheeks. With his tail, he can draw a weight equal to that of his body."

From comparing the two figures, and the descriptions of Mr. Colinson and of M. Simon Chauveau, it is evident that they both relate to the same animal, except some slight varieties, which change not the species.

THE MOUFFETTES, OR STINKING POLECATS.

WE have given the generic name *mouffette* to three or four species of animals, which, when disturbed, send forth an odour so strong and offensive, that it suffocates like the subterraneous vapour called *mouffette*. These animals are found in all the southern and temperate regions of America *: they have been indistinctly mentioned under the names of *stinking beasts*, *devil's children* †, &c., and not only confounded with

* " But, above all, I cannot pass over without mentioning, a little creature, with a bushy tail, which we called a *huffer*, because when he sets sight on you, he stands vapouring and patting with his fore-feet upon the ground, and yet hath no manner of defence for himself but with his breech; for, upon your approaching near him, he turns about his backside, and squirts at you, accompanied with the most abominable stink in the world."—*Dampier*, vol. iv. p. 96. In Peru there are numbers of small foxes, some of which send forth an intolerable smell. During the night, they come into the towns, and, however close the windows, their odour is felt at the distance of a hundred paces. Happily, their number is not great, otherwise they would stink the whole world.—*Hist. des Incas*, tom. ii. p. 269.

† There is a kind of martin, called the *devil's child*, or *stinking beast*, because, when pursued, its urine infects the air.

each other, but with animals of very different species. Hernandez * has pretty clearly pointed out three of them. The first he calls *ysquiepatl*, a Mexican name, which, were it easily pronounced, we would retain. He has given a description and figure of it; and it is the same animal of which we have also a figure in Seba †. We shall call it *coase*, from the name *squash*, which it receives in New Spain ‡. The second

for more than a quarter of a mile round. In other respects, it is a beautiful animal. It is of the size of a small cat, but thicker. Its hair is lustrous and grayish, with two white lines, that form, on its back, an oval figure from the neck to the tail, which is bushy like that of the fox, and erect, like that of the squirrel. — *Hist. de la Nouv. France, par le P. Charlevoix*, tom. iii. p. 343. *Note*, This is the animal we shall here call the *conepatl*, which is its Mexican name.

* *Ysquiepatl seu Vulpecula quæ Maizium torrefactum æmulatur colore. Genus primum . . . sunt et alia duo hujus vulpeculæ genera eadem forma et natura, quorum alterum ysquiepatl etiam vocatum, fasciis multis candentibus distinguitur; alterum vero conepatl seu vulpecula puerilis unica tantum utrinque ducta, perque caudam ipsam eodem modo delata.* — *Hernand. Hist. Mex.* p. 332, fig. *ibid*.

† Seba, vol. i. p. 68, tab. 42, fig. 1.

‡ The *squashe* is a quadruped larger than a cat; and its head resembles that of a fox: He has short ears, and sharp claws, which enable him to climb trees like a cat. His skin is covered with fine, short, yellowish hair; and his flesh is very good and wholesome. — *Dampier*, vol. iii. p. 302.

Stifling weesel, with a short slender nose, short ears and legs, a black body, full of hair, and a long tail, of a black and white colour. The length, from nose to tail, is about eighteen inches. — *Penn. Synops. Quadr.* p. 230.

Ysquiepatl. — *Hernand. Mex.* p. 332. — *Ray's Synops. Quadr.* p. 181. — *Klein. Quadr.* p. 72.

Hernandes likewise calls *ysquiepatl*, and which we shall denominate *chinche*, from the name it obtains in South America*. The third Hernandez calls *conepatl*, which name we shall preserve, and is the same animal with that given by Catesby, under the denomination of the *American polecat* †, and by Brisson, under that of the

Meles Surinamensis. — *Briss. Quadr.* p. 185:

Ichneumon de Ysquiepatl. — *Seba, Mus.* tom. i. tab. 42.

* The skunk weasel, with short rounded ears, black cheeks, and a white stripe from the nose, between the ears, to the back. The upper part of the neck and the whole back are white, divided at the bottom by a black line, commencing at the tail, and passing a little way up the back. The belly and legs are white. The tail is very full of long coarse hair, generally black, and sometimes tipped with white; that figured by M. de Buffon is entirely white. It has very long nails on all the feet, like these on the fore-feet of a badger. It is somewhat less than the European polecat. — *Penn. Synops. Quad.* p. 232.

Chinche. — *Seuillée, Obs. Peru*, p. 271.

Skunk, *fiskatta*. — *Kalm's Voy.* — *Forster's Trav.* vol. i. p. 273, tab. 2. — *Josselyn's Voy.* p. 85.

Enfant du diable, *Bête puante*. — *Charlevoix, Nouv. Franc.* tom. v. p. 196.

† This animal in shape is not unlike our common polecat, except that the nose of this is somewhat longer: the colour of all I have seen is black and white, though not always alike marked. This had a list of white, extending from the hind part of the head along the ridge of the back, to the rump; with four others, two on each side, running parallel with it. — *Catesby's Nat. Hist. of Carolina*, vol. ii. p. 62.

The striated weasel, with rounded ears; head, neck, belly, legs, and tail, black; the back and sides marked with five parallel white lines, one on the top of the back, the others on each side. The second line extends some way up the tail, which is long and bushy towards the end. It is of the size of

striped polecat *. We are acquainted with a fourth species, which we call *zorilla*, the name it receives in Peru and other parts of South America.

We are indebted for our knowledge of two of these animals to M. Aubry, whose taste and skill in natural history are conspicuous in his cabinet, which is one of the most curious in Paris. He obligingly communicated to us all his treasures, as often as we required them; and this will not be the only opportunity we shall have of expressing our gratitude. The animals we borrowed from M. Aubry, in order to have them drawn and engraved, are the coase, the chinche, and the zorilla; the two last of which may be regarded as new; because there is no figure of them to be found in any author.

an European polecat; only the back is more arched. The disposition of the stripes varies.—*Penn. Synops. Quadr.* p. 232.

Polecat, or skunk. — *Lawson's Carolina.* — *Catesby's Carolina.*

Mustela Americana foetida. — *Klein, Quadr.* p. 64.

Viverra putorius, fusca, lineis quatuor dorsalibus, parallelis, albis. — *Linn. Syst. Nat.* p. 64.

* The zorilla weasel has the back and sides marked with stripes of black and white; the last tinged with yellow. The tail is long and bushy, part white and part black. The legs and belly are black. It is smaller than the skunk. — *Penn. Synops. Quadr.* p. 233.

Mustela nigra, tæniis in dorso albis, putorius striatus. Le Putois rayé. — *Brisson,* p. 181.

Annas of the Indians; *Zorrinas* of the Spaniards. — *Garcil. de la Vega,* p. 331.

Mariputa, Mafutiliqui. — *Gumilla, Oronoque,* tom. iii. p. 240.

The first of these animals was transmitted to M. Aubry, under the name of *pekan*, *devil's child*, or *wild cat of Virginia*. I perceived that it was not the pekan, rejected all the compound denominations, and discovered that it was the *ysquiepatl* of Hernandez, and the *squash* of other travellers *; from which last appellation I derived the name *coase*. It is about sixteen inches long, including the head and the body. The legs are short, the muzzle thin, and the ears small. The hair is of a deep brown colour, and the claws are black and sharp. It lives in the holes and clefts of rocks, where the female brings forth her young. It feeds upon beetles, worms, and small birds; and, when it gets admission to the court-yards, it destroys the poultry, of which it only eats the brain. When afraid or irritated, it emits an odour so abominable, that neither men nor dogs dare approach. Its urine, which apparently mingles with this pestiferous odour, stains and infects in an indelible manner. It appears, however, that this disagreeable odour is not constant: "This animal," Seba remarks, "was sent me alive from Surinam; and I kept it during a whole summer in my garden, where it was secured by a small chain. It never bit any person; and when it was presented with food, it allowed itself to be handled like a small dog. It

* *Ysquiepatl*, whose colour resembles that of burnt maize. . . . Its head is like that of a young fox; and its snout is nearly like that of a hog. The Americans call it *quasje*. — *Seba*, vol. i. p. 68. *Note*, This authority is a farther proof that *squash*, or *coase*, is the true name of the animal.

dug the earth with its snout and fore-feet, which were armed with long crooked claws. During the day, it concealed itself in a kind of den which it had made. It came out in the night, and, after trimming itself, began to run about, from right to left, as far as its chain would permit; and this exercise it continued till morning. It searched every where with its nose on the ground. It was served with victuals every night, and never took any food but what was agreeable to its nature. It was not fond of flesh, bread, and several other kinds of nourishment. May-bugs, boiled shrimps, caterpillars, and spiders, were its chief delicacies. About the end of autumn, it was found dead in its hole, being unable to endure the cold. The hair on the back is of a deep chesnut colour; the ears are short; the forehead is round, and of a brighter colour than the back; and the belly is yellow. The tail is of a moderate length, covered with short brown hair, and a kind of yellowish rings were perceptible all round it."

Though Seba's description and figure correspond very well with those of Hernandez, it may be doubted whether they relate to the same animal; because Seba makes no mention of the detestable odour, which he must unquestionably have perceived in the course of a whole summer, during which he kept the animal in his garden. But no such doubt will remain, after we are informed, that this animal does not send forth its disagreeable odour, unless when irritated or frightened; and that it is often tamed and kept in

houses by the inhabitants of different parts of America*.

Of these four species of *mouffettes*, to which we have given the name of *coase*, *conepatl*, *chinche*, and *xorilla*, the two last belong to the warmest climates of South America, and may be varieties only, and not distinct species. The two first inhabit the more temperate climates of New Spain, Louisiana, the Illionois, Carolina, &c., and appear to be different species, particularly the *coase*, which has only four toes on the forefeet, while all the others have five. But all these animals have the same figure, the same instincts, the same pestiferous odour, and may be said to differ only in the length and colour of their hair. The *coase* is of a pretty uniform brown colour. The *conepatl*†, upon a black ground-colour,

* Notwithstanding the offensive quality of these animals, they are sometimes tamed by the English, French, Swedes, and Savages of North America. They are said to follow their masters like domestic animals, and that they do not throw out their urine, unless when beat or irritated. When a Savage kills any of them, he cuts out the bladder to prevent their flesh, which is good eating, from being infected with the smell of the urine. I often met with English and French, who informed me, that they had eaten this flesh, and found it to be very well tasted, approaching near to the flavour of a pig. The Europeans put no value on the skin, on account of the length and coarseness of the hair; but the Savages make purses of it, &c.—*Kalm's Travels*, p. 417.

† The English denominate *polecat* a species of animal which is common not only in Pennsylvania, but in several other more northern and southern provinces of America. In New York its vulgar name is *skunk*; and the Swedes in that country call it *fiskatte*. This animal has a great resem-

has five white bands which extend longitudinally from the head to the tail. The chinche* is white

blance to the martin, and is generally of a black colour, with three white bands which run longitudinally from head to tail. Some of them have been seen, though rarely, almost entirely white. This animal brings forth its young in burrows, or in hollow trees: it continues not always on the ground, but mounts upon trees. It is an enemy to birds; for it breaks their eggs and eats their young. When it gets admission to a hen-house, it makes great havock. When hunted, either by men or dogs, he runs as well as he can, or climbs up a tree; and, when hard pushed, he darts forth his urine against his pursuers. The odour of his urine is so strong, that it suffocates. If a drop of this pestiferous fluid falls upon the eyes, the person is in danger of losing his sight; and, when it falls upon a man's clothes, it is extremely difficult to extract the smell. Most dogs fly from him the moment they feel this odour. It requires more than a month to remove the smell from stuffs of any kind. In the woods, it is often felt at a great distance. In the year 1749, one of these animals came near the place where I lodged. It was in winter, and during the night. The dogs were wakened, and pursued it. In a moment, it diffused an odour so fetid, that I was almost suffocated in my bed, and the cows bellowed in a hideous manner. About the end of the same year, another of them slipt into our cave; but it diffused not the smallest odour, which it never does, unless when pursued or irritated. A woman perceived its eyes sparkle in the dark, and killed it. The cave was instantly filled with such a noxious odour, that the woman was not only sick for several days, but the bread, meat, and other provisions, were so infected, that they were obliged to be thrown away.—*Kalm's Travels*, p. 412.

* This animal was called *chinche* by the natives of Brasil. It is of the size of a cat. Its head is long, and tapers toward the end of the upper jaw, which advances beyond the under, and both form a mouth that extends to the external angles of the eyes, which are long and narrow: the uvea is

on the back, and black on the flanks, with a head entirely black, except a white line which extends from the nape of the neck to the chanfrin of the nose. Its tail is bushy, and covered with very long white hair, mixed with a little black. The zorilla*, which is called *mapuri-*

black, and all the rest white. The ears are large, and nearly resemble those of a man, and their whole structure indicates a delicate sense of hearing. Two white bands arise on the head, pass over the ears, and, receding from each other, terminate in an arch upon the sides of the belly. Its legs are short, and the paws are divided into five toes, armed with black claws, with which it digs holes in the earth. Its back is arched like that of a hog, and its belly is flat. The tail is of equal length with the body, and differs not from that of the fox. The hair is of a dark gray colour, and as long as that of a cat. It burrows in the earth like a rabbit; but its hole is not so deep. I have had much difficulty in extracting the bad smell of this animal from my clothes which had been infected by it. Though several times washed, soaked, and dried in the sun, it continued more than eight days. I was informed that this smell proceeds from the animal's urine, which it discharges on its tail, and by this means disperses it all around, in order to put the enemy to flight by the intolerable stench; that, for the same purpose, it urines in the entry to its habitation; that it is very fond of small birds and poultry; and that it is the chief cause of the destruction of birds in the country of Buenos Ayres.—*Journal du P. Feuillee*, p. 272. *Note*, The chinche appears to be the same animal with the *chincille* mentioned by Acosta. "The chincilles," he remarks, "are small animals like squirrels, and their hair is wonderfully soft and smooth. . . . They are found in the Sierre of Peru.—*Hist. Nat. des Indes Occident*, p. 199.

* The zorilla of New Spain is as large as a cat, with black and white hair, and a very fine tail. When pursued, it discharges its urine as a defence; for the stench of this excretion is so strong, that it poisons the air all round to the distance of a hundred paces, and prevents the enemy from advancing.



COASSE.



CHINCH.



CONEPATE.

*ta**, seems to be a smaller species. Its tail, however, is as bushy and as beautiful as that of the chinche, from which it differs in the disposition of the spots in the fur. The ground-colour of the zorilla is black, upon which there are longitudinal white bands, extending from the head to the middle of the back, and other transverse white bands on the flanks, the crupper, and the origin of the tail, which is black, as far as the middle, and then white to the extremity; but the tail of the chinche is of one uniform colour. All these animals† are nearly of the same figure, and of the

If it falls upon clothes, they must be buried for some time under the ground, in order to remove the stench.—*Voyage de Gemelli Careri*, tom. vi. p. 212.

* The mapurita is an animal on the banks of the Oronooko, and is perhaps the most beautiful, and, at the same time, the most detestable of all creatures. The Whites of America call it *mapurita*, and the Indians *mafutiliqui*. Its body is all spotted with black and white, and its tail is adorned with beautiful hair. It is an active, mischievous, and strong animal. The stench of its odour, which extends to a great distance, is so intolerable, that I was once almost suffocated by it. The Indians, however, eat its flesh, and adorn themselves with its skin, which has no bad smell.—*Hist. Nat. de l'Orenoque*, par Gumilla, tom. iii. p. 240.

† In Louisiana, there is a small animal of considerable beauty, but whose urine poisons the air to the distance of more than a league; for this reason, it is called the *stinking beast*. It is as large as a cat. The male is of a fine black colour; the female is likewise black, and spotted with white. Its eyes are extremely vivacious. It is justly denominated *stinking*; for its odour is infectious. I once killed one of these animals, and my dog having darted upon it, returned and fawned upon me. A drop of the blood, and doubtless,

size of an European polecat, which they resemble still more in their manners. The physical results of their organization are likewise the same. Of all the animals on this continent, the polecat diffuses the most disagreeable odour. This odour is only more exalted in the mouffettes, whose species or varieties are numerous in America. But, in the Old Continent, the species of the polecat is single; for I believe not that the animal mentioned by Kolbe, under the name of the

also the urine, was left upon my coat, which was made of hunting ticking. The smell was so intolerable, that I was obliged to run home to change my clothes, &c. — *Hist. de la Louisiane, par le Page du Pratz*, tom. ii. p. 86. When one of these animals is attacked by a dog, to appear formidable, it so changes its usual form, by bristling up its hairs, and contracting its length into a round form, that it makes a very terrible appearance. This menacing behaviour, however insufficient to deter its enemy, is seconded by a repulse far more prevailing; for, from some secret duct, it emits such fetid effluvia, that the atmosphere, for a large space round, shall be so infected with them, that men and other animals are impatient till they are quit of it. This stench is insupportable to some dogs, and necessitates them to let their game escape; others, by thrusting their noses into the earth, renew their attacks till they have killed it, but rarely care to have more to do with such noisome game, which, for four or five hours, distracts them. The Indians, notwithstanding, esteem their flesh a dainty, of which I have eat, and found it well-tasted. I have known them brought up young, made domestic, and prove tame and very active, without exercising that faculty, which fear and self-preservation, perhaps, only prompt them to. They hide themselves in hollow trees and rocks, and are found in most of the northern continents of America. Their food is insects and wild fruit. — *Catesby's Carolina*, vol. ii. p. 62.

*stinking badger**, which appears to be a real mouffette, exists at the Cape of Good Hope as a native of that country. It may have been transported from America; and Kolbe, who is by no means exact in his facts, may have borrowed his description from P. Zuchel, whom he quotes as having seen this animal in Brasil. That of New Spain, called *ortohua* by Fernandez†, seems to be the same animal with the zorilla of Peru; and the *tepemaxtla* of the same author may be the conepate, which ought to be found in New Spain, as well as in Louisiana and Carolina.

* Descript. du Cap de Bonne Esperance, par Kolbe, tom. iii. p. 86.

† *Ortohula*, magnitudine tres dodrantes, vix superat, nigro candidoque vestita pilo, sed quibusdam in partibus fulvo apud has gentes in cibi jamdiu venit usum, quamvis crepitus ventris sit illi foetidissimus: occitucensibus versatur agris est et altera species quam tepemaxtla vocant, eadem fere forma et natura, sed nulla in parte fulva, et cauda nigris albisque fasciis transversim discurrentibus varia, quæ provenit quoque apud Occitucenses. — *Fernand. Hist. An. Nov. Hisp.* cap. xvi. p. 6.

THE PEKAN* AND THE VISON†.

THE name *pekan* was long familiar in the fur-trade of Canada‡, without knowing the animal to which it properly belonged. This name is not

CHARACTER SPECIFICUS.

MUSTELA CANADENSIS. *M. pedibus fassis, corpore fulvo nigricante, pectore macula alba.*—*Linn. Syst. Nat. Gmel. i. p. 95.*—*Erxleb. Mamm. p. 455.*—*Schreb. iii. p. 492, pl. 13 f.*

LE PEKAN.—*Buff. Hist. Nat. par Sonn. xxxiii. p. 257, pl. 22, fig. 2.*

PEKAN.—*Penn. Hist. Quadr. ii. p. 51.*—*Shaw's Gen. Zool. i. p. 429.*

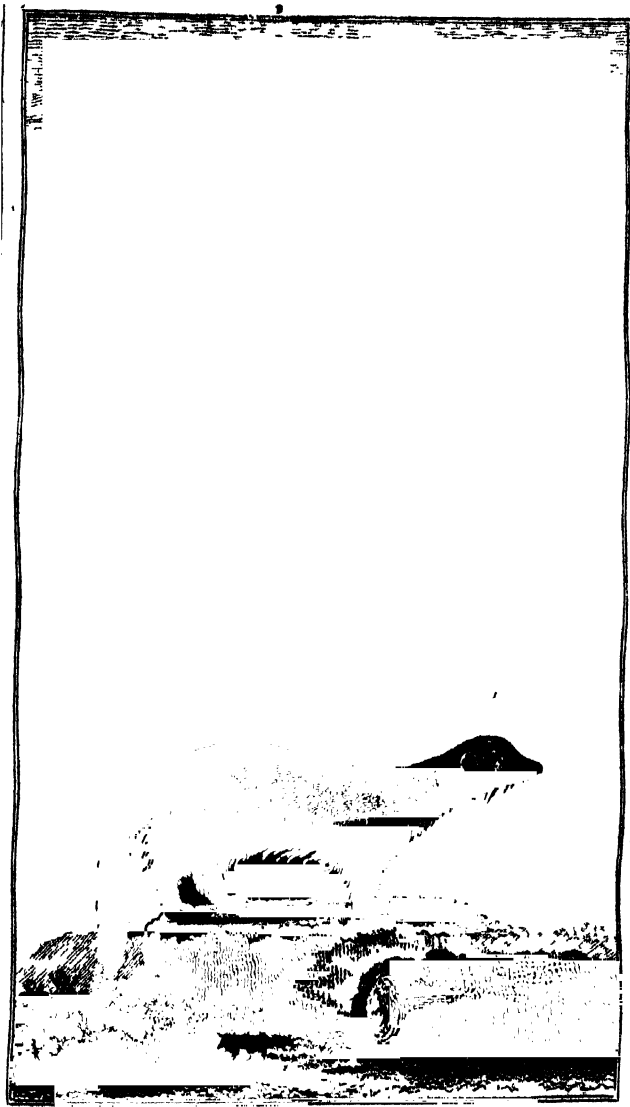
HABITAT

in Canada.

Pekan weesel, with very long and strong whiskers; ears a little pointed; hair on the head, body, belly, and legs, cinereous at the roots, and of a bright bay at the ends, very soft and glossy. Between the fore-legs, there is a white spot. The toes are covered with thick hair above and below. The claws are sharp. The tail is of a deeper colour than the body. In form, it is like a martin, but much less.—*Penn. Synops. Quadr. p. 224.*

† CHARACTER SPECIFICUS.

MUSTELA VISON. *M. plantis palmatis, corpore saturate castaneo unicolore.*—*Linn. Syst. Nat. Gmel. i. p. 94.*—*Schreb. iii. p. 463, pl. 127, fig. B.*



PECAN.



VISON.

to be found in the writings of the naturalists, and travellers have employed it indiscriminately to denote different animals §, and particularly the mouffettes. By others, the animal which ought to bear the name of pekan has been called a *fox*, or a *wild cat*; and it was impossible to derive any precise knowledge from such short and erroneous intimations. With regard to the *vison*, we are equally ignorant. We know nothing of these names, except that they belong to two North American animals. We found these two animals in the cabinet of M. Aubry, who obligingly permitted us to describe and draw them.

The pekan has so strong a resemblance to the pine weasel, and the vison || to the martin, that

Mustela pilis coloris saturate castanei in toto corpore vestita.—*Briss. Quadr.* p. 178, No. 6.

LE VISON.—*Buff. Hist. Nat. par Sonn.* xxxiii. p. 257, pl. 22, fig. 1.

MINX.—*Lawson's Carol.* p. 121.

VISON.—*Penn. Hist. Quadr.* i. p. 51.

HABITAT

in America boreali.

IV.

‡ Names of the skins brought from Canada, and their values in the year 1683. Those of the pekans, wild cats, or devil's children, are worth one livre fifteen sous a piece.—*Voyage de la Hontan*, tom. ii. p. 39.

§ It diffuses an insupportable odour. In Canada, the French call it *devil's child*, or *stinking beast*: some of them, however, give it the name of *pekan*.—*Kalm's Trav.* p. 412.

|| I am inclined to think, that the animal mentioned by Sagard Theodat, under the name of *ottuy*, is the same with the vison: "The ottay," he remarks, "is as large as a small rabbit. Its hair is very black, and so soft, polished, and

they may be regarded as varieties of these species. They not only have the same figure, the same proportions, the same length of tail, the same quality of hair, but the same number of teeth and claws, and the same instinct and manners. Hence we may conclude, that the pekan is a variety of the pine weasel, and the vison a variety of the martin, or, at least, that the species are so allied, that they exhibit no real differences. The hair of the pekan and vison is only browner, and more lustrous and silky than that of the pine weasel and the martin. But this difference, it is well known, is common to them, with the beaver, the otter, and other animals of North America, whose furs are more beautiful than those of the same animals in the North of Europe.

fine, that it resembles velvet." The Canadians are fond of these skins, and make garments of them. — *Voyage au Pays des Hurons*, p. 308. No Canadian animal corresponds so well with this description as the vison.



MOUFFETTE *or* CHILI.

THE MOUFFETTE OF CHILI.

M. DOMBEY, whom we have frequently had occasion to quote, brought us the skin of an individual of this species. This mouffette inhabits Chili, and belongs to the family of zorilla, of coneplate, and other animals called *stinking beasts*, which equally inhabit South America. Its manners, about which we have no particular information, ought to be similar to those of the stinking animals, to which it approaches in its conformation, as well as by the distribution of its colours. The stuffed specimen that we saw, was a male; it had a large and short head; the ears round, and rather flattened; the body thick and large about the loins; the thighs large and fleshy; the legs short; the feet small, with five toes on each foot, and the nails long, crooked, and furrowed*. Its tail, which curled above the back, like the squirrel's, was large, and furnished with tufted hairs nearly three inches long. The hair which covered its head, body, legs, and the upper part of its tail, near the base, was, in some places, an inch long, and of a shining blackish-

* The longest nail of the fore-feet measured eleven lines; and that of the hind-foot, five lines.

brown colour. The rest of the hair of the tail was white; and, on the back, we perceived two broad white bands, which reunited into one*†.

* This specimen measured nineteen inches three lines, from the end of the snout to the tail, and the tail was seven inches four lines long, including the length of the hair: the teeth were wanting to this skin.

† Dr. Shaw considers this animal to be of the same species as the grison. — *Gen. Zool.* i. p. 393. W.

THE SABLE*.

THE sable is mentioned by almost every naturalist, without knowing more of it than the skin. M. Gmelin is the first who gave a

* CHARACTER SPECIFICUS.

MUSTELA ZIBELLINA. M. pedibus fissis, corpore obscure fulvo, fronte exalbida, gutture cinereo. — *Linn. Syst. Nat. Gmel.* i. p. 96. — *Erxleb. Mamm.* p. 467. — *Schreb.* iii. p. 478, pl. 136. — *Pallas, Spic. Zool.* xiv. p. 54, tab. 3, fig. 2.

Mustela obscure fulva, gutture cinereo. — *Briss. Quadr.* p. 180.

MUSTELA SOBELLA. — *Gesn. Quadr.* p. 768. — *Rzacz. Polon. Auct.* p. 317.

SEBELLINÆ. — *Schoeff. Lappon.* p. 343.

MUSTELA ZIBELLINA. — *Aldr. Digit.* p. 335. — *Jonst. Quadr.* p. 156. — *Gmel. Nov. Com. Petrop.* v. p. 338, pl. 6.

LA ZIBELINE. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 262.

SABLE. — *Penn. Hist. Quadr.* ii. p. 43. — *Shaw's Gen. Zool.* i. p. 411.

HABITAT

in Asia et America septentrionali, Tartaria, Siberia usque in Kamtschatkam, ubi hodie rarior. Raro quoque in Lapponia occurrit. Degit in silvis antiquis desertis. Latet in terræ caveis aut sub arborum radicibus; interdum nidum parat in arboribus uti Martes.

W.

Sable weasel, with long whiskers, rounded ears, and long bushy tail. The colour of the hair is black at the tips, and

figure and description of this animal. He saw two of them alive in the house of the governor of Tobolski. "The sable," says he, "resembles the martin in the form and habit of body, and the weasel in the teeth. It has six cutting teeth, pretty long, and a little crooked, and two canine in the under jaw, and small sharp teeth in the upper. It has long whiskers round the mouth, and large feet, all armed with five claws. These characters were common to both the sables. But the one was of a blackish brown-colour all over the body, except the ears, and below the chin, where the hair was a little yellow. The other was smaller, and of a yellowish-brown colour, with the ears and under part of the chin of a paler cast. These are their winter colours; for, in spring, they change by the shedding of the hair. The first sable, which was of a blackish-brown, changes into a brownish-yellow in spring; and the second, which was of a yellowish-brown, becomes a pale yellow. I admired," continues M. Gmelin, "the agility of these animals. Whenever they perceive a cat, they rise upon their hind-feet, to prepare for the combat. In the

cinereous at the bottom; the chin is cinereous, and the edges of the ears yellowish. Sometimes the hair is of a tawny cast; for, in spring, after shedding the coat, the colour varies. There are instances of their being found of a snowy whiteness. The usual length, from nose to tail, is about eighteen inches, and that of the tail ten. — *Penn. Synops Quadr.* p. 217.

Zobel, in German; *Sobol*, in Polish; *Sabbel*, in Swedish; *Zibeline*, *Marte Zibeline*, in French.

hight, they are extremely restless and active *. During the day, on the contrary, and particularly after eating, they generally sleep half an hour or an hour, when they may be pushed, shaken, and even pricked, without awaking." From this description we learn, that the sables are not all of the same colour; and, consequently, that the nomenclators, who describe them by the spots and colours of the hair, have employed a fallacious character; for their colour not only varies in different seasons, but the individuals of the same and of different climates differ from each other †.

The sables inhabit the banks of rivers, and the thickest parts of the woods. They leap with great agility from tree to tree, and avoid the rays of the sun, which are said, in a short time, to change the colour of their hair. It is pretended that they conceal themselves, and lie in a torpid state during the winter ‡, and yet

* This restless activity during the night is not peculiar to the sable. The same thing I remarked in two ermines, which I kept for several months.

† Sonnini observes, that there is a variety of sable which is quite white: this, as well as another variety, with a white or yellow spot under the neck, is very rare.

W.

‡ Of the two sables mentioned by M. Gmelin, the first came from the province of Tomskien, and the second from that of Beresowien. We likewise learn, from his account of Siberia, that there are, on the mountains of Sopka Sinaia, black sables, with short hair, the hunting of which is prohibited; and that a similar kind is also found in the more advanced mountains, as well as among the Calmucks Vrangai.

this is the best season for hunting them, because their fur is then better and more beautiful than in summer. They live upon rats, fishes, pine tops, and wild fruits. They are very ardent in their amours: during their season of love, they emit a strong odour, and their excrements, at all times, have a disagreeable smell. They are chiefly found in Siberia: there are not many of them in the forests of Great Russia, and still fewer in Lapland. The blackest sables are most esteemed *. The sable differs from all other furs in this circumstance, that the hair turns with equal ease to any side.

The hunting of the sables is carried on by criminals confined to Siberia †, or by soldiers sent for the purpose, who generally remain there

“ I saw,” says he, “ some of their skins, which the Calmucks had brought down: they are distinguished by the name of *kangaraga sables*.”—*Voyage de Gmelin*, tom. i. p. 217.

* The sable differs from the martin by being smaller, and having finer and longer hair. The true sables are damasked with black, and are taken in Tartary. There are few of them in Lapland. The fur is esteemed in proportion to the blackness of the hair, and sometimes sells at sixty crowns, though the width of the skin exceeds not four inches. Some of them have been seen white and others gray.—*Regnard*, tom. i. p. 176. Schoeffer likewise remarks, that white sables are sometimes found. — *Hist. de la Lapponie*, p. 318.

† This was formerly the case, when the barbarous policy of the Russian government condemned the unhappy exile to spend the remainder of his life in Siberia; but as population increased in that part of the empire, the sables retired from their usual haunts, and are now said to have in great measure quitted the district, and gone farther north and east.

several years. Both are obliged to furnish a certain quantity of furs. They shoot with a single ball, to injure the skin as little as possible : and sometimes, instead of fire-arms, they use cross-bows and small arrows. As the success of this hunting requires much address and assiduity, the officers are allowed to encourage the soldiers, by giving them a proportional part of all the sables they kill above what they are obliged to furnish weekly, which turns out to be a considerable premium * †.

To what we have said respecting the sable, we shall add some facts related by the Russian travellers, which are published in the last volumes of the *Hist. Gen. des Voyages*.

“ The sables live in holes of corrupted trees, or under their roots, or on rocky eminences. Their nests are constructed with moss, branches of trees, and turf. In these holes, or nests, they continue twelve hours both in summer and winter. The remainder of their time is occupied in quest of subsistence. In spring, they feed upon weesels, ermines, squirrels, and especially hares. But in the fruit season they eat bayberries, and the fruit of the service-tree. In winter, they catch small birds and woodcocks.

* A colonel, from seven years service in hunting sables, may draw, of clear profit, four thousand crowns, the subalterns in proportion, and each soldier six or seven hundred. — *Voyage du P. Avril*, p. 169. See also *Relat. de la Russie, par la Neuville*, p. 217.

† The price of a sable is said to vary from one to five pounds sterling and upwards. W.

When the snow falls, they retire to their holes, where they remain sometimes three weeks. They copulate in the month of January. Their amours continue one month, and often produce bloody combats between the males. After copulation, they remain in their nests about fifteen days. The females bring forth about the end of March, and produce from three to five young, which they suckle four or six months.

“ The hunters go in companies of forty in quest of these animals, during the winter only, and use canoes, with provisions for three or four months. They have a chief, who, when they arrive at the rendezvous, assigns to each band a particular quarter, and all the hunters are obliged to obey him. The snow is removed from the places where the snares are to be laid; and each hunter prepares twenty of them daily. The hunters choose a small spot in the vicinity of trees, surround it, to a certain height, with sharp stakes, and cover it with thin planks, to prevent the entrance of the snow. They leave a narrow passage, above which is placed a beam, supported only by a small twig; and, as soon as the sable touches it to carry off the piece of flesh or fish, put there for a bait, the beam falls and kills the animal. All the sables are brought to the general conductor; or, rather, they are concealed in the holes of trees, to prevent the Tongusians, or other savage people, from stealing them. When the sables are averse to enter these snares, the hunters have recourse to nets. When a hunter discovers the tract of a sable, he follows it till he discovers

its hole, and, by means of smoke, obliges the animal to come out. He then extends his net; and continues lying in wait, in this manner, with his dogs, for two or three days successively. This net is thirteen fathoms long, and four or five in height. When the sable leaves its hole, it seldom escapes; for the dogs slay it when entangled by the net. When discovered on the trees, the hunter shoots them with blunt arrows, to prevent the skins from being injured. The hunting being finished, the company assemble at the general rendezvous, and reembark as soon as the rivers become navigable by the melting of the ice * †."

* Hist. Gen. des Voyages, tom. xix. p. 144.

† The following account of sable hunting, collected by Pennant, is somewhat different from the above, and sufficiently interesting to deserve a place in this page:

"The hunters of sables form themselves into troops from five to forty each; the last subdivide into lesser parties, and each chooses a leader, but there is one that directs the whole: a small covered boat is provided for each party, loaded with provision, a dog, and net, for every two men, and a vessel to bake their bread in: each party, also, has an interpreter for the country they penetrate into: every party then sets out, according to the course their leader points out: they go against the stream of the rivers, drawing their boats up, till they arrive in the hunting country; there they stop, build huts, and wait till the waters are frozen, and the season commences. Before they begin the chase, their leader assembles them; they unite in a prayer to the Almighty for success, and then separate: the first sable they take is called God's sable, and is dedicated to the church. They then penetrate into the woods, mark the trees as they advance, that they may know their way back; and, in their hunting-quarters, form huts of trees, and bank up the snow round them: near these lay their traps, then advance farther, and

Some naturalists have suspected that the sable is the *satherius* of Aristotle; and I believe their conjecture is well founded. The fineness of the fur is a proof that the animals are often in water; and travellers inform us *, that they are never very numerous, but in small islands, where the hunters go in quest of them. Besides, Aris-

lay more traps, still building new huts in every quarter, and return successively to every old one, to visit the traps and take out the game to skin it, which none but the chief of the party must do; during this time they are supplied with provision by persons who are employed to bring it on sledges, from the places on the road where they are obliged to form magazines, by reason of the impracticability of bringing quantities through the rough country they must pass. The traps are a sort of pit-fall, with a loose board placed over it, baited with fish or flesh: when sables grow scarce, the hunters trace them, in the new-fallen snow, to their holes, place their nets at the entrance, and sometimes wait, watching two or three days, for the coming out of the animal: it has happened, that these poor people have, by the failure of their provisions, been so pinched with hunger, that, to prevent the cravings of appetite, they have been reduced to take two thin boards, one of which they apply to the pit of the stomach, the other to the back, drawing them tight together by cords placed at the ends; such are the hardships our fellow-creatures undergo, to supply the wantonness of luxury.

“ The season of chase being finished, the hunters reassemble; make a report to their leader, of the number of sables each has taken; make complaints of offenders against their regulations; punish delinquents; share the booty; then continue at the head-quarters till the rivers are clear of ice; return home, and give to every church the dedicated furs.” — *Penn. Hist. Quadr.* ii. p. 45, 46. W.

* The hunters go to the small islands in quest of sables, where they retire. They are killed with a kind of cross-bows, &c. — *Voyage du P. Avril*, p. 168.

totle mentions the *satherius* as a water animal, and ranks it with the otter and beaver. It is likewise to be presumed, that, when Athens was in its splendor, these beautiful furs were known in Greece, and that the animal which furnished them had a name. Now, there is no name which can more properly be applied to the sable, than that of *satherius*, especially if it be true that the sable eats fish *, and continues so much in the water as to be reckoned amphibious.

* In umbrosis saltibus versatur semper, insidiatur aviculis.
—In escam assumit mures, pisces, uras rubeas. — *Rzacinski*,
Auct. Hist. Nat. Polon. p. 318.

THE LEMING, OR LAPLAND MARMOT*.

OLAUS MAGNUS is the first who mentions the leming. All that Gesner, Scaliger,

CHARACTER SPECIFICUS.

MUS LEMMUS. *M. brachyurus*, auriculis vellere brevioribus, palmis pentadactylis, corpore fulvo nigroque vario subtus albo. — *Linn. Syst. Nat. Gmel.* i. p. 136. — *Pall. Glir.* p. 186, pl. 12, A. B. — *Schreb.* iv. p. 687, pl. 195, α . β .

MUS LEMMUS. — *Fabric. It. Norw.* p. 191.

GLIS LEMMUS. *G. corpore fulvo nigroque vario.* — *Erxleb. Mamm.* p. 371.

MUS NORWEGICUS. — *Ray's Quadr.* p. 227. — *Mus. Worm.* p. 321. fig. p. 325, bona.

Cuniculus (Norwegicus) caudatus auritus ex flavo rufo et nigro variegatus. — *Briss. Quadr.* p. 145,

LEMMUS. — *Gesn. Quadr.* p. 828.

Bestiola Leem dicta. — *Aldrov. Digit.* p. 436. — *Jonst. Quadr.* p. 168.

LE LEMING. — *Buff. Hist. Nat. par Sonn.* xxxiii. p. 274, pl. 23.

LEMMUS. — *Penn. Hist. Quadr.* ii. p. 198, pl. 73.

LEMMING RAT. — *Shaw's Gen. Zool.* ii. p. 76, pl. 195.

HABITAT

in montibus nivalibus Scandinaviæ, et parte quam maxime boreali catenæ montium Uralensis, sub tuberibus terræ.

Ziegler, Johnston, &c., have said concerning it, is borrowed from this author. But Wormius, after the most accurate researches, has written a history of this animal, which he describes in the following manner: "It has," he remarks, "the figure of a mouse; but the tail is shorter, and the body about five inches long. The hair is fine, and spotted with various colours. The fore part of the head is black, and the hind part yellowish. The neck and shoulders are black. The rest of the body is reddish, and marked with small black spots of different figures, as far as the tail, which exceeds not half an inch in length, and is covered with blackish-yellow hairs. Neither the figure nor the order of the spots is the same in every individual. Round the mouth there are several stiff hairs in the form of whiskers, of which six on each side are longer and stiffer than the rest. The opening of the mouth is small, and the upper lip is divided, as in the squirrels. From the upper jaw proceed two long, sharp,

Lapland marmot, with two very long cutting teeth in each jaw; head pointed; long whiskers; six of the hairs on each side longer and stronger than the rest; eyes small and black; mouth small; upper lip divided; ears small, blunt, and reclining backwards; fore-legs very short; four slender toes on the fore-feet, covered with hairs; and, in the place of the thumb, a sharp claw, like a cock's spur; five toes behind; tail about half an inch long, the body and head about five. The skin is very thin. The colour of the head and body is black and tawny, disposed in irregular blotches. The belly is white, tinged with yellow.—*Penn. Synops. Quadr.* p. 274.

Leming is the Norwegian name of this animal, which we have adopted.

and somewhat crooked cutting teeth, the roots of which penetrate as far as the orbits of the eyes. Two similar teeth in the under jaw correspond with those above; and there are three grinders on each side, situated at a distance from the cutting teeth. The first of the grinders is large, and composed of four lobes, the second of three lobes, and the third is much smaller. Each of these three teeth has a separate socket, and they are placed in the palate, at a considerable distance from one another. The tongue is pretty large, and extends to the extremity of the cutting teeth. From the remains of herbs and straw found in its throat, we are inclined to think that it is a ruminating animal. The eyes are small and black, and the ears recline on the back. The fore-legs are very short, and the feet covered with hair, and armed with five sharp crooked claws; the middle one is very long, and the fifth is like a small thumb, or a cock's spur, and sometimes situated equally high on the leg. The whole belly is whitish, inclined to yellow," &c.

These animals, though their body is thick, and their legs very short, fail not to run pretty quickly. They generally inhabit the mountains of Norway and Lapland; but, in particular years, they sometimes descend in such numbers*, that the

* It has been remarked; that the lemmings appear not regularly every year, but at certain unforeseen periods, and in such numbers, that they spread every where, and cover the whole surface of the earth. . . . These small animals, instead of being afraid, or flying from passengers, are bold and obstinate, face those who attack them, and cry and yelp

arrival of the leming is considered as a terrible scourge, the effects of which it is impossible to avoid. They make dreadful devastation in the fields, lay waste the gardens, ruin the crops, and leave nothing except what is shut up in houses, where they happily* never enter*. They bark

nearly in the same manner as small dogs. When attacked, they neither fear clubs nor halberds, but dart against those who strike them, outrageously biting, and fixing upon the weapons employed to kill them. These animals, it is singular, never enter the houses or huts to do mischief; but keep always concealed among the bushes and hillocks. They sometimes make war, and divide themselves into two armies along the lakes and meadows. . . . Their enemies are foxes and ermines, who devour great numbers of them. . . . Grass that has been eat down, and springs again, is said to kill them; and they seem likewise to commit suicide; for they are often found suspended on the branches of trees; and they probably throw themselves, in troops, into the waters, like the swallows. — *Hist. de la Lapponie, par Schoeffer, p. 322.* *Nota,* It would appear that the leming, like the rats, mutually destroy and eat one another, when pasture fails them; and that this is the reason why their destruction is as sudden as their multiplication.

* "These migrations," says Dr Shaw, "seldom happen oftener than once in ten years, and in some districts still less frequently, and are supposed to arise from an unusual multiplication of the animals in the mountainous parts they inhabit, together with a defect of food; and, perhaps, a kind of instinctive prescience of unfavourable seasons; and it is observable that their chief migrations are made in the autumn of such years as are followed by a very severe winter. . . . All who have written on the subject agree that they proceed in a direct course, so that the ground along which they have passed appears at a distance as if it had been ploughed; the grass being devoured to the very roots, in numerous stripes, or parallel paths, of one or two spans broad, and at the distance

nearly like small dogs. When struck at with a stick, they seize it so forcibly with their teeth, that they allow themselves to be carried to a considerable distance without quitting their hold. They dig holes in the earth, and make roads like the moles, in quest of roots. At particular times, they assemble together, and the whole die in company. They are very courageous, and defend themselves against other animals. It is not known from whence they come. The vulgar

of some ells from each other. This army of mice moves chiefly by night, or early in the morning, devouring the herbage as it passes, in such a manner that the surface appears as if burnt. No obstacles which they happen to meet in their way have any effect in altering their route; neither fires, nor deep ravines, nor torrents, nor marshes, or lakes: they proceed obstinately in a straight line, and hence it happens that many thousands perish in the waters, and are found dead by the shores. If a rick of corn or hay occurs in their passage, they eat through it; but if rocks intervene, which they cannot pass, they go round, and then resume their former straight direction. If disturbed or pursued while swimming over a lake, and their phalanx separated by oars or poles, they will not recede, but keep swimming directly on, and soon get into regular order again; and have even been sometimes known to endeavour to board or pass over a vessel *."

Vast numbers of these little creatures, as has been observed, perish in the waters, and many become the prey of foxes and other wild animals, who follow them for the purpose. The particular part of Europe where these quadrupeds reside, does not seem to be positively fixed, but wherever they come from, it appears pretty clear that none ever return, the whole immense swarm being destroyed in some way or other.

W.

* General Zoology, ii. p. 78.

believe that they fall from the clouds along with the rain *. The male is generally larger than the female, and his black spots are also larger. Upon the renewal of the grass, they infallibly die. In fine weather, they take to the water in vast multitudes; but, when a breeze of wind rises, they are all drowned. The number of these animals is so prodigious, that, when they die, the air is infected, and produces many diseases. They even seem to infect the plants which they gnaw; for the pasture then kills the cattle. The flesh of the lemmings is not good; and their skin, though the hair be fine, does not answer for making furs, because it is too thick.

* Bestiolæ quadrupedes, *lemmar* vel *lemmus* dictæ, magnitudine soricis, pelle varia per tempestates et repentinos imbres—incompertum unde, an ex remotioribus insulis et vento delatæ, an ex nubibus fœculentis natæ deserantur. Id tamen compertum est, statim atque deciderint, reperiri in visceribus herbæ crudæ nondum incoctæ. Hæ more locustarum in maximo examine cadentes omnia virentia destruunt, et quæ morsu tantum attigerint emoriuntur virulentia; vivit hoc agmen donec non gustaverit herbam renatam. Conveniunt quoque gregatim quasi hirundines evolaturæ, sed stato tempore aut moriuntur acervatim cum lue terræ (ex quarum corruptione aër fit pestilens, et afficit incolas vertigine et ictero), aut his bestiis dictis vulgariter *lekat*, vel *hermelin*, consumuntur, unde iidem hermelini pinguescunt. — *Ol. Mag. Hist. Gent. Sept.* p. 142.

THE SEALS, THE WALRUS, AND THE MANATI.

LET us assemble, for a moment, all the quadrupeds into one group, and let the intervals or ranks represent the proximity or distance between each species. Let us place in the centre the most numerous genera, and on the flanks those which are least numerous. Let us confine the whole within narrow bounds, that we may have the more distinct view of them ; and we shall find, that it is impossible to round this inclosure. Though all quadrupeds are more closely connected together than to any other being, yet several of them make prominent points, and seem to fly off in order to join other classes of animated nature. The apes make a near approach to man. The bats are the apes of birds, which they imitate in their flight. The porcupines and hedgehogs, by the quills with which they are covered, seem to indicate that feathers are not confined to birds. The armadillos, by their scaly shells, approach the turtle and the crustaceous animals. The beavers, by the scales on their tails, resemble the fishes. The anteaters, by their beak, or trunk without teeth, and the length of the tongue, claim an affinity to the

fishes. In fine, the seal, the walrus, and the manati, are a separate corps, and make a great projection, with a view to arrive at the cetaceous tribes.

Seal, walrus, and manati, are rather generic than specific denominations: in the first place, I establish a distinction founded in Nature, and on a very evident character, by dividing the entire genus of phoca into two parts; *viz.* seals which have external ears, and seals which have only little auditory holes, without any external helix. This difference is not only very apparent, but seems even to constitute an essential attribute, the want of external ears being one of the traits by which the amphibia approach the cetacea, from the bodies of which Nature seems to have effaced every kind of prominence that might render the skin less smooth, and not so proper to glide through the waters, whilst the raised external helix of the ear, which is not wanting in any terrestrial animal, seems to bring those seals provided with it nearer to the quadrupeds.

We are acquainted with only two distinct species of eared seals: the first is the sea-lion, which is very remarkable on account of its yellow mane; and the second, which navigators have indicated by the name of sea-bear, and which is composed of two varieties, differing greatly in size: we therefore join to this species the *little black-haired seal*, which, being provided with external ears, is a variety only of the sea-bear. These plausible inductions induced me at first to consider this

little sea-bear as the *phoca* of the ancients; but, as Aristotle, speaking of the *phoca*, says expressly, *that it has no external ears, but only two auditory holes*, I perceive that we must seek this *phoca* of the ancients in some one of the species of earless seals.

Under the name *walrus*, we comprehend the animals commonly called *sea-cows*, or *sea-horses*, of which we know two species, the one found only in the northern, and the other in the southern seas; the last is called *dugon*, or *Indian walrus*. In the last place, under the term *manati*, we comprehend the animals called *lamantius*, or *sea-oxen*, in St. Domingo, Cayenne, and other parts of South America, as well as the *lamantin* of Senegal, and other parts of the coast of Africa, which appears to be only a variety of the American kind.

The seal and walrus are more nearly allied to the quadrupeds than to the cetaceous animals; because they have a kind of fore-feet. But the *manati*, which have only two fore-feet, resemble the cetaceous tribes more than the quadrupeds.

Both differ from other animals by a singular character: they alone can live equally in air and in water; and, consequently, they alone merit the appellation of *amphibious*. In man, and the other terrestrial viviparous animals, the *foramen ovale* of the heart, which permits the fœtus to live without respiration, closes the moment after birth, and remains shut during life. In the seal and walrus, on the contrary, it is always open, though the mothers bring forth their young on

land, and respiration commences immediately after birth, as in all other animals. By means of this perpetual aperture in the *septum*, or partition of the heart, which allows a communication of the blood from the vena cava to the aorta, these animals enjoy the privilege of respiring, or not, at their pleasure. This singular power is common to the whole of them: but each possesses peculiar faculties, which shall be pointed out, as far as we have been able to learn, in the history of the particular species.

THE SEALS* †.

IN general, the seals, like man, have a round head; a broad muzzle, like the otter; large, high, placid eyes; small, or no external ears, being only two auditory passages on each side of the head; whiskers round the mouth; teeth similar to those of the wolf; the tongue forked at the end; a fine neck; the body, hands, and feet, covered with short and pretty coarse hair; no apparent arms, but rather two membranes or skins, investing five fingers, and terminated by five claws; two feet without legs, and perfectly similar to the hands, except that they are larger,

* PHOCA.

CHARACTER GENERICUS.

Dentes primores superiores sex paralleli: exteriores majores. Inferiores quatuor, paralleli, distincti, æquales, obtusi-
usculi.

Laniarii solitarii: superiores a primoribus, inferiores a molaribus remoti, primoribus longiores.

Molares quinque vel sex, tricuspidati.

Pedes pentadactyli: postici coaliti.

W.

† In several European languages, these animals have received the denomination of *sea-calves*, *sea-dogs*, *sea-wolves*, and *sea-foxes*.

and turn backward to unite with a very short tail, which they accompany on each side; a long body, like that of a fish, but thick at the breast, narrow at the belly, without haunches, crupper, or thighs. The structure of this animal is so strange, that it served as a model, upon which the imagination of the poets framed the tritons, sirens, and sea-gods, with a human head, the body of a quadruped, and the tail of a fish. The seal, in effect, reigns in this mute Empire, by his voice, his figure, his intelligence, and his talents, which are common to him with the inhabitants of the land, and render him so superior to the fishes, that they seem not only to belong to another order of beings, but to a different world. This amphibious animal, though his nature be very distant from that of our domestic animals, is susceptible of a species of education. He is reared by keeping him often in water; he is taught to give a salute with his head and his voice; he comes when called upon, and exhibits several other marks of intelligence and docility *.

His brain and cerebellum are proportionally larger than in man. His senses are as good as those of any quadruped; and, consequently, his sensations are equally vivacious, and his intellect equally active: both are exhibited in the gentleness of his manners, his social dispositions, his

* Vituli marini accipiunt disciplinam, voceque pariter et visu populum salutant: incondito fremitu nomine vacati respondent. — *Plin. Hist. Nat.* lib. ix. cap. 13. A Dutch sailor had tamed a sea-calf to such a degree, that it performed a hundred monkey tricks. — *Voyage de Misson*, tom. iii. p. 113.

affection for the female, his attention to his offspring, and in the expressive modulation of his voice, which is superior to that of any other animal. He is also endowed with strength*, and weapons of defence. His body is large and firm, and his teeth and claws are sharp. Besides, he enjoys advantages which are peculiar to him. He is neither afraid of cold nor of heat. He lives indifferently on herbs, flesh, or fish. He inhabits, without inconvenience, water, land, and ice. He, along with the walrus, alone deserves the epithet of *amphibious*. He alone has the *foramen ovale* of the heart open†; and, consequently, he alone can dispense with respiration, the elements of air and water being equally agreeable to him. The otter and beaver are not really amphibious, since air is their proper element; and, as they are deprived of this aperture through the septum of the heart, they cannot re,

* On the coasts of Canada, we often heard, during the night, the voice of the sea-wolves, resembling nearly that of cats making love. — *Hist. de la Nouve. Franc. par l'Escarbot*, p. 600. When we reached the island of Juan Fernandes, we heard the sea-wolves crying day and night; some of them bleated like lambs, and others barked like dogs, or howled like wolves. — *Woods Rogers*, p. 206.

† As the seals are destined to remain a long time in the water, and as the transmission of the blood through the lungs cannot be performed without respiration, they have the *foramen ovale* open, as in the fœtus, which never respire. It is an aperture which makes a communication between the right ventricle of the heart and the left, and allows the blood to pass directly from the cava into the aorta, instead of the long winding course of the lungs. — *Hist. de l'Acad. des Sciences*, tom. i. p. 84.

main long under water, but are obliged either to leave it, or to raise their heads above it in order to respire.

But these great advantages are balanced by imperfections still greater. The seal is a kind of crippled animal. His arms, thighs, and legs, are almost entirely shut up within his body. Nothing appears without, except his hands and feet, which are, it is true, divided into five fingers; but these fingers are not separately moveable, being united by a strong membrane; and these extremities are rather fins, than hands and feet, a kind of instruments adapted for swimming, and not for walking. Besides, the feet are directed backward, like the tail, and cannot support the body of the animal, which, when on land, is under the necessity of trailing itself like a reptile*. This motion must be painful; for his body being unable to bend in the form of an

* The sea-wolves on the coast of Canada, which some call *sea-calves*, are as large as big dogs. They keep almost perpetually in the water, never removing to any distance from the margin of the sea. These animals rather crawl than walk; for, when out of the water, they only slide along the sand or mud. . . . The females bring forth their young upon rocks or small islands. They live upon fishes, and are fond of cold countries. — *Voyage de la Hontan*, tom. ii. p. 45. “The seals are as big as calves, the head of them like a dog, therefore called by the Dutch the *sea-hounds*. Under each shoulder grows a long thick fin: these serve them to swim with when in the sea, and are instead of legs to them when on the land for raising their bodies up on end, by the help of these fins or stumps, and so having their tail parts drawn close under them, they rebound as it were, and throw their bodies for-

arch, like the serpents, in order to obtain different points of support, and to advance by means of the reaction of the ground, the seal would remain fixed in the same place, were it not for his hands and tail, which he attaches to whatever he can lay hold of, and uses them with such dexterity, that he mounts very quickly upon a high shore, upon a rock, and even upon a board of ice, though slippery and steep *. He walks more rapidly than one should imagine, and, though wounded, he often escapes from the hunters by flight †.

The seals live in society, or, at least, great numbers of them frequent the same places. The north is their natural climate, though they can live in the temperate zones, and even in warm climates: for we find some of them upon the coasts of almost every European sea, not exclud-

ward, drawing their hinder parts after them; and then again rising up and springing forward with their fore parts alternately, they lie tumbling thus up and down all the while they are moving on land. — *Dampier's Voyage*, p. 89.

* The sea-calves have very sharp teeth, with which they cut a stick as thick as a man's arm. Though they appear to be lame behind, they climb the boards of ice, upon which they sleep. . . . The sea-calves which frequent the coasts are fatter, and yield more oil, than those that inhabit the ice. . . . We sometimes find numbers of sea-calves upon such high and precipitous boards of ice, that it is astonishing how they should be able to climb them. — *Descript. de la Pêche de la Baleine, par Zörgdrager*, p. 193.

† I gave several strokes of my sword to a sea-calf, which prevented it, not from outrunning me; and it plunged into the water, from which I never saw it rise again. — *Recueil des Voyages du Nord*, tom. ii. p. 130.

ing the Mediterranean. They are likewise seen in the southern seas of Africa and America *. But they are infinitely more numerous in the northern seas of Asia, Europe †, and America; and they are also very common in Magellan's Straits, the island of Juan Fernandes ‡, &c. In

* The sea-calves are frequent in the northern parts of Europe and America, and in the southern parts of Africa, as about the Cape of Good Hope, and at the Straits of Magellan: and though I never saw any in the West Indies, but in the Bay of Campeachy, at certain islands called the Alceranes, and at others called the Deserts; yet they are over all the American coasts of the South Seas, from Terra del Fuego, up to the Equinoctial Line; but to the north of the Equinox again, in these seas, I never saw any, till as far as twenty-one degrees north latitude. Nor did I ever see any in the East Indies. — *Dampier's Voyage*, p. 90.

† In mari Bothnico et Finnico, maxima vitulorum marinorum sive phocarum multitudo repiritur. — *Ol. Magn. de Gent. Septent.* p. 163. On the west coast of Greenland, we find many sea-calves, but very few about Spitzbergen. . . . The largest sea-calves are generally from five to eight feet long, and they furnish the best oil. . . . They are as fond of sporting on the ice as on land; and whole flocks of them are sometimes collected on the same board of ice. . . . The sea-calves are chiefly taken between the seventy-fourth and seventy-seventh degree, upon the western borders of the ice. They are also taken every year in Davis's Straits, and near Nova Zembla.—*Descript. de la Pêche de Baleine, par Corneille Zorgdrager*, vol. i. p. 192, translated from the German by M. le Marquis de Montmirail.

‡ The seals come to the island of Juan Fernandes in the month of September to bring forth their young. They are then so fierce, that, instead of retiring from man, they advance in order to bite him, though armed with a bludgeon. . . . The margin of the sea is sometimes covered with them, to the extent of more than half a mile.—*Woods Rogers*.

different climates, the species varies in size, colour, and even in figure. We have seen some of these animals alive, and are possessed of several stuffed skins.

Lastly, when we began to write on the seals, we were acquainted with only two or three species, but our late voyagers have discovered several others, and we are now enabled to distinguish them, and to give them their proper characters and denominations.

These animals, though differing in species, have many common properties, and ought to be considered as of the same nature. The females bring forth in winter, and place their young upon a bank of sand, a rock, or a small island. They sit on their hind-legs*, to allow their young to suck; and they continue to nourish them in this manner during twelve or fifteen days, without removing them from the place of their birth; after which the mother carries them to the sea, and learns them to swim and to search for food. When fatigued, she places them on her back. As every litter consists only of two or three, her cares are not much divided, and their education is soon completed. Besides, Nature has bestowed on these animals uncommon sagacity and sentiment. When assistance is necessary, they understand, and mutually aid one another. The young know their mother in the

* The seals have two fins on each side the rump, which serve instead of a tail in the sea; and, on land, they sit on them, when they give suck to their young. — *Dampier*, vol. i. p. 82.

midst of a numerous troop; they distinguish her voice, and when she calls they never fail to come*.' We know not the period of gestation; but, if we judge of it from that of the growth, the duration of life, and the magnitude of the animal, it must be several months: it is some years before they acquire their full growth, and the duration of their life must be proportionally long. I am even inclined to believe that they live longer than is generally imagined, perhaps above a hundred years; for the cetaceous animals live much longer than the quadrupeds; and as the seal is the intermediate link between both, it ought to partake of the nature of the former, and, of course, enjoy life longer than the latter.

* Dampier, vol. i. p. 89.

SEALS WITHOUT EARS, OR
SEALS PROPERLY SO
CALLED.

WE are acquainted with nine or ten species, or distinct varieties, of earless seals; and we shall here notice them in the order of their size, and by the characters which voyagers have adopted to name and distinguish them from each other.

THE GREAT SEAL WITH A WRINKLED NOSE*.

First Species.

THIS is the largest species of seal, which several voyagers, and particularly the compiler of Anson's Voyage, have noticed under the name of

* CHARACTER SPECIFICUS.

PHOCA LEONINA. P. capite antice cristato, corpore fusco. — *Linn. Syst. Nat. Gmel.* i. p. 63. — *Schreb.* iii. p. 279, pl. 73. — *Erxleb. Mamm.* p. 581.

PHOCA MAJOR. P. dentibus caninis tectis, palmis anterioribus digitatis, unguulatis, posterioribus latis bifidis. — *Parson's Phil. Trans.* xlvii. p. 121.

PHOCA ELEPHANTINA. — *Molina, Hist. Nat. du Chili.* French edition, p. 260.

LOUP MARIN. — *Pernetty, Voy.* p. 40, pl. 9, fig. 1.

LE GRAND PHOQUE A MUSEAU RIDE. — *Buff. Hist. Nat. par Sonn.* xxxiv. p. 19.

SEA-LION. — *Anson's Voyage*, p. 122, cum figg. maris et feminæ.

HOODED SEAL. — *Penn. Arct. Zool.* i. p. 162, No. 76.

BOTTLE-NOSED SEAL. — *Penn. Hist. Quadr.* ii. p. 286. — *Shaw's Gen. Zool.* i. p. 268, pl. 73.

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ad polum antarcticum, et littus Chilense.

W.

sea-lion; but improperly, since the true sea-lion has a mane, which this has not, and they also differ in size, and in the shape of several parts of the body, insomuch that the seal with the wrinkled snout does not associate with the true sea-lion, which inhabits the coasts and desert islands, and which is found, like the other, in the seas of both hemispheres.

This animal abounds on the Magellanic coasts, and at the island of Juan Fernandes in the South Sea. The sea-lions resemble the seal, which is likewise very common in the same latitudes; but they are much larger. When they have acquired their full growth, they are from eleven to eighteen feet long, and from seven or eight to eleven feet in circumference. They are so fat, that, after

Leonine seal. The *male* has an arched, projecting snout, hanging five or six inches below the lower jaw. The feet are short and dusky, with five toes on each, furnished with nails. The hind-feet have the appearance of great lacinated fins. It has large eyes, and great whiskers. The hair on the body is short, and of a dun colour; that on the neck a little longer. The skin is very thick. The length of an old male is twenty feet, and the greatest circumference fifteen.

Female. Nose blunt, tuberos at the top; nostrils wide; mouth breaking very little into the jaws; two small cutting teeth below, two small, and two larger, above; two canine teeth, remote from the preceding; five grinders in each jaw; all the teeth conic; eyes oblique and small; auricles none; fore-legs twenty inches long; toes furnished with flat oblong nails; hind parts, instead of legs, divided into two great bifurcated fins; no tail; the whole covered with short rust-coloured hair; length, from nose to the end of the fins, four yards; greatest circumference two yards and a half. — *Penn. Synops. Quadr.* p. 348.

piercing the skin, which is an inch thick, there is at least a foot of blubber, before we reach the flesh: one of them will yield five hundred pints of oil. They are, at the same time, very full of blood, which springs with great force when the animal is deeply wounded. Upon cutting the throat of an individual, two hogsheads of blood were collected, beside what remained in the vessels of the body. Their skin is covered with short hair, of a clear tawny colour; but their tail and feet are blackish. Their toes are united by a membrane, which extends not to their extremity, and each of them is terminated by a claw. They differ from the common seals, not only in magnitude, but in other characters. The males have a kind of large crest, or trunk, which hangs from the end of the upper jaw to the length of five or six inches. This part is wanting in the females, which, beside their being much smaller, at once distinguishes them from the males. Each male carries about him a troop of females, and allows no other male to approach. These animals are truly amphibious. They pass the summer in the sea, and the winter upon land. In this last season, the females bring forth, and produce but one or two at a time, which they suckle. A new born sea-lion is as large as a full grown common seal.

During all the time that sea-lions are upon land, they feed upon the herbage which grows on the banks of running waters. When not pasturing, they sleep in the mire. They are very indolent, and it is difficult to waken them: but

they have the precaution of stationing males as sentinels round the places where they sleep; and these sentinels are said to give warning when danger approaches. Their cries are loud, and of various tones. Sometimes they grunt like hogs, and sometimes snort like horses. The males often quarrel about the females, and inflict dreadful wounds with their teeth. The flesh of these animals is tolerable food; the tongue, particularly, is equally good as that of an ox. It is very easy to kill them, for they can neither fly nor defend themselves. They are so unwieldy, that they can hardly move or turn; a person has only to take care not to come too near their teeth, which are very strong, and with which they inflict mortal wounds*.

From other observations, compared with the former, and from some conclusions to be deduced from them, it appears that these sea-lions, which are found in the southern point of America, appear again, with little variety, on the northern coasts of the same continent. The large seals of Canada, mentioned by Denis under the denomination of *sea-wolves*, and which he distinguishes from the common seals, may be of the same species with the sea-lions. Their young, that author remarks, when brought forth, are thicker and longer than the largest hog. Now, it is certain, that the seals of our ocean, though full grown, are never of this size. The Mediterranean seal, or the *phoca* of the ancients, is still less. There

remain only the seals described by Parsons, whose magnitude corresponds with those of Denis*. Parsons does not mention the sea where this large seal was found. But, whether it came from the north of Europe or from America, it might be the same with the sea-wolf of Denis, and the sea lion of Anson; because it agreed in size, for, though it had not nearly acquired its full growth, it was seven feet long. Besides, the most remarkable difference, next to that of magnitude, between the sea-lion and the seal, is a large crest which the male of the former has upon the upper jaw, but which is wanting in the female. Parsons did not see the male; he described the female only, which had no crest, and perfectly resembled the female sea-lion of Anson. To these similarities, Parsons adds another, which is still more remarkable: he tells us, that his seal had the stomachs and intestines of a cow; and, at the same time, the author of Anson's Voyages says, that the sea-lion feeds upon herbage during the whole summer. Hence it is extremely probable, that the structure of these two animals is the same, or, rather, that they are the same animals, and very different from the other seals, which have but one stomach, and feed upon fishes.

Woods Rogers had previously mentioned these sea-lions on the coasts of South America,

* To the testimony of Denis, we may still add that of P. Chr. Leclercq: "Upon the coasts of North America, there are sea-wolves, some of which are as large as horses and oxen. These sea-wolves are called *Ouaspous*." — *Relation de la Gaspésie*, p. 490.

and describes them somewhat differently from the author of Anson's Voyage: "The sea-lion," he remarks, "is a very strange creature, and of a prodigious size. I have seen some of them above twenty feet long, and could not weigh less than 4,000 pounds. Others were sixteen feet in length, and might weigh about 2,000 pounds. The quantity of oil they yielded was amazing. The figure of their body approaches to that of the sea-calf; but their skin is thicker than that of an ox. The hair is short and coarse, the head disproportionally large, and the mouth remarkably big: the eyes are of a monstrous size. The muzzle resembles that of a lion, with terrible whiskers, the hairs of which are so stiff that they may serve for tooth-picks. About the end of the month of June, these animals repair to the island of Juan Fernandes, in order to produce their young, which they deposit about a gunshot from the margin of the sea. There they remain till the end of September, without moving out of the place, and without taking any nourishment; at least, we never saw them eat. I observed some of them continue eight days in the same spot, and would not have abandoned it, if we had not frightened them. . . . At the island of Lobos, on the coast of Peru, we saw some sea-lions, and a greater number of seals*."

These observations of Woods Rogers, which correspond very well with those of the author of Anson's Voyage, seem still farther to prove,

that the sea-lions feed upon herbage when they are on land; for it is by no means probable, that they pass three months without taking any nourishment, especially when suckling their young. In the Collection of Voyages to the South Sea, there are many remarks concerning these animals: but neither the facts nor descriptions appear to be exact. For example, it is said, that, in Magellan's Straits*, there are sea-wolves so large, that their skin, when extended, was thirty-six feet wide; which is unquestionably an exaggeration. We are also told, that, in the two islands of Port Desire, these animals resemble lions in the anterior part of their body, having the head, neck, and shoulders garnished with a very long bushy mane†. This is a still greater exaggeration; for the sea-lions have only a little more hair on the neck than on the rest of the body; but this hair exceeds not an inch in length‡. It is farther remarked, that some of these animals are more than eighteen feet long; that many of them are only fourteen feet; and that, generally, they exceed not five§. This account would lead us to believe that there are two species, the one much larger than the other; because the author does not inform us whether this difference was owing to the difference of their ages, which, however, was necessary to prevent error. "These

* Navigation aux Terres Australes, tom. i. p. 163.

† Idem. p. 221.

‡ Hist. du Paraguay, par le P. Charlevoix, tom. vi. p. 181.

§ Navigation aux Terres Australes, tom. ii. p. 11.

animals," says Coreal *, "keep their mouths always open: two men are hardly able to kill one of them with a spear, which is the best weapon to use against them. The female suckles four or five young, and drives away any other young ones which approach her: from this circumstance I concluded that the females bring forth four or five at a litter." This conjecture seems to be well founded; for the seal described by Mr. Parsons had four paps, situated in such a manner as to form a square, in the centre of which the navel is placed.

Dampier and Byron, as well as Anson, found this seal at the island of Juan Fernandes, and on the western coast of Terra Magellanica †. Bougainville, Perneti, and Bernard Penrose, met

* Voyage de Coreal, tom. ii. p. 180.

† "The sea-lion is a large creature, about twelve or fourteen feet long. The biggest part of his body is as big as a bull; it is shaped like a seal, but six times as big; the head is like a lion's head; it hath a broad face, with many long hairs growing about its lips like a cat. It has a great goggle eye, the teeth three inches long, about the bigness of a man's thumb: in captain Sharp's time, some of our men made dice with them. They have no hair on their bodies, like the seal; they are of a dun colour, and are all extraordinary fat: one of them being cut up and boiled, will yield a hog'shead of oil, which is very sweet and wholesome to fry meat withal. The lean fish is black, and of a coarse grain; yet indifferent good food. They will lie a week at a time ashore if not disturbed. Where three or four, or more of them come ashore together, they huddle one on another like swine, and grunt like them, making a hideous noise. They eat fish, which, I believe, is their common food."—*Dampier's Voyages*, vol. i. p. 90.

with it on the eastern coast of this continent, and at the Malouines, or Falkland Islands. The Forsters also saw two females of this species, in an island which captain Cook named New Georgia*, and which is situated in the Atlantic Ocean, in the fifty-fourth degree of southern latitude. These two females were sleeping on the beach, and were killed in that situation. On the other hand, M. Steller saw and described this great wrinkle-nosed seal, in Bering's Island, and near the coasts of Kamtschatka†. This great species is, therefore, found equally in the two hemispheres, and probably in all latitudes.

We name this animal wrinkle-nosed seal, on account of a rugose and moveable skin on the nose, which may be filled with air and puffed up, and which inflates, in effect, when the animal is agitated with any passion; but we ought to observe that this crested skin is monstrously exaggerated in Anson's figure, and is really much smaller in nature.

This great animal is naturally very indolent; it appears to be the least formidable of all the seals, notwithstanding its large size. Penrose

* This isle was discovered in the preceding century, by Antony de la Roche, and was again noticed in 1756, by Duclos Gurgot, who named it *l'Isle de Saint Pierre*.

† See his Treatise on Marine Animals.

‡ The English sailors call it the *clap-match* seal, a name evidently corrupted from *clapmutze*, which the Germans and Danes give to a very different animal, with a hood that enclosed the head, and which the Greenlanders call *neitser-suk*.— See the article Hooded Seal.

says that the sailors amuse themselves in riding the seals like horses, and that, when they do not go fast enough, they make them double their pace by pricking them with a stiletto, or knives, and even making incisions in the skin. However, Mr. Clayton, who has mentioned this seal in the *Philosophical Transactions*, says, that the males, like those of other seals, are very mischievous during the time of their amours.

This species is covered with very short, rough, and shining hair, of an ash-colour, sometimes mixed with a light tint of olive: its body, which is commonly from fifteen to eighteen English feet in length, and sometimes from twenty-four to twenty-five, is pretty thick about the shoulders, from whence it tapers to the tail. A female killed by Mr. Forster was only thirteen feet long; and, supposing it to be an adult, there will be a great difference in size between the males and females of this species. The upper lip projects greatly over the lower; the skin of this lip is moveable, wrinkled, and inflated the length of the muzzle; and this skin, which the animal fills with air at pleasure, may, in shape, be compared to the comb of a turkey-cock: it is from the above character that it derives its name of wrinkle-nosed seal. It has only two little auditory holes, and no external ears; the fore-feet are like those of the common seal, but the hind-feet are more shapeless, and resemble fins; so that this animal, though much stronger and larger than our seal, is less active, and also

more imperfectly formed in its hinder parts: it is probably on this account that it appears indolent and hardly formidable.

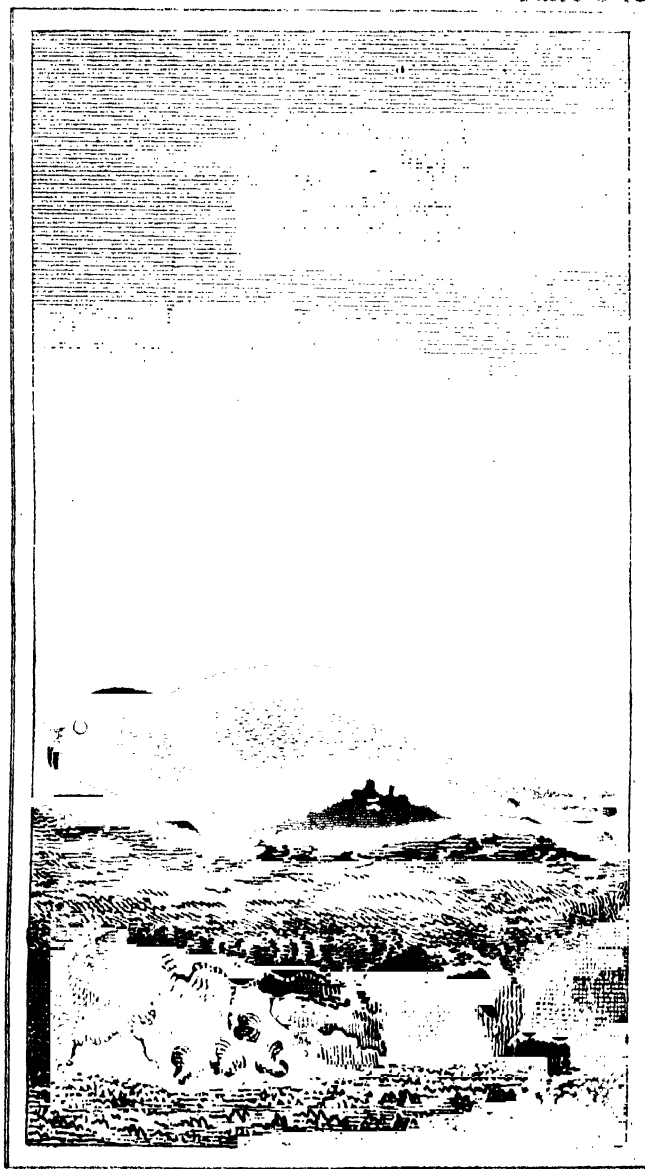
Mr. Clayton has mentioned a seal found in the southern hemisphere: he says that it is called *fur-seal*, because it is more furnished with hair than the other seals, although its skin is thinner. We are not enabled to judge from such feeble indications, if this fur-seal is a species allied to the wrinkle-nosed seal (by the side of which Mr. Clayton has placed it), or to the sea-bear, whose fur is in effect much thicker than that of other seals*.

* In the Natural History of Chili, by Molina, we find the following remarks respecting the wrinkle-nosed seal, which he calls *phoca elephantina* (elephant seal), on account of its large size:

“The *lame* (the name of this seal in Chili), the lame,” says Molina, “is of an enormous size: it arrives at the length of twenty-two feet; and the body, measured at the breast, is fifteen feet in circumference. It carries a crest, or glandulous trunk on the nose, five or six inches thick, which extends from the forehead, beyond the upper lip, and which serves it as a defensive weapon to parry off blows, which (on that part of the body) are always mortal to it. The canine teeth of the lower jaw project at least four inches; and this singularity, including the trunk, gives it a distant resemblance to the elephant. Its feet are divided into five toes, each of which is provided with a strong and crooked nail: these toes are half covered with a coriaceous membrane, gashed on the sides. Its ears, at first sight, appear to be truncated; but, on an attentive examination, we perceive that they rise four or five lines: they resemble the ears of a dog. The skin of the lame is covered with a kind of short but soft hair, of a variable colour. The female is rather smaller than the male, and has only a slight indication of trunk upon the nose.

“ The lames inhabit (by choice) the coasts of the island of Juan Fernandes, the coast of the Arauques, the Archipelago of Chiloe, and the Straits of Magellan. They are gregarious, living, during the summer, in the sea : at the beginning of winter, on the coasts, where they copulate, seated on their hind-feet, and embracing each other with their fins. The female produces one or two, rarely three little ones. On land, they seek for puddles, in which they wallow, and are often found asleep. One lame watches as sentinel on a height, while the others sleep, and warns them, in case of danger, by frightful howlings.

“ This seal, as it is the largest of all, produces the most oil. When it walks, the motion of the blubber may be seen through the skin. The males seem very amorous, and often fight till they die, for the exclusive enjoyment of the females. It is on this account that we see so many with their skin covered with cicatrices. When the males fight, the females keep out of the way, and are the reward of the victor, who takes possession of them all.”



WHITE BELLED SEAL.

THE WHITE-BELLIED SEAL*,

Second Species.

WE have given the figure of a great white-bellied seal, which we saw alive in December, 1778, and which is a very different species from the wrinkle-nosed seal: we are going also to report the observations that we have made on this seal, to which we shall add some facts that we have been supplied with by its keepers.

This animal has a mild countenance, and it is not of a ferocious nature. Its eyes are attentive, and seem to announce intelligence; they at least express sentiments of affection, of attachment for its master, whom it obeys with all deference: we have seen it bend to his voice, roll itself, turn, offer him one of its fore-fins, erect

* CHARACTER SPECIFICUS.

PHOCA BICOLOR. P. nigra inauriculata, albo varia, naso longato, pedibus posterioribus lunatis. — *Shaw's Gen. Zool.* p. 204.

LE PHOQUE A VENTRE BLANC. — *Buff. Hist. Nat. par Sonn.* t. 54, pl. 1, fig. 1.

PIED SEAL. — *Penn. Hist. Quad.* ii. p. 273, pl. 98 — *Shaw's Gen. Zool.* i. p. 254, pl. 71.

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in Oceano Adriatico.

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itself by raising its bust, that is to say, all the fore part of its body, out of the trough of water in which it was contained. It answered to his voice or his signs, by a croak which seemed to come from the bottom of its throat, and might be compared to the hoarse bellowing of a young bull: it appears that the animal produces this sound by expiration, as well as by inspiration, only it is a little clearer and more free from hoarseness by inspiration than the contrary.

Before its master had tamed it, it bit very violently whenever it was forced to exhibit; but, as soon as it was subdued, it became gentle, so much so, that he might touch it, put his hand into its throat, and even fearlessly rest himself near it, supporting his arm or his head upon the seal. When its master called it, it answered him, however distant it might be; when the seal could not see him, it appeared to seek him with its eyes, and as soon as it perceived him (after a very short absence) it did not fail to testify its joy by a sort of gruff murmur.

When this animal (a male) was in heat, which happened almost every month, its usual gentleness was at once changed into a species of fury that made it dangerous: its ardour then declared itself by bellowsings accompanied by violent erection; it agitated and tormented itself in its trough; its motions were sudden and inquiet, and it roared for several hours together: it was by similar cries that it expressed its pain when it was abused: but it had other more gentle accents, very expressive, and even articulate, to testify its joy and satisfaction.

In this excess of amorous fury, occasioned by a want which the animal could not fully gratify, and which lasted eight or ten days, it has been seen to leave its trough, after having broke it; and in these moments it was very dangerous, and even ferocious; for then it knew no one, it no longer obeyed the voice of its master, and it was only by leaving it to calm itself for several hours, that it could be approached. One day it seized him by the sleeve, and they had a great deal of trouble to make it let go, by opening its gullet with an instrument: another time it threw itself on a great dog, and crushed its head with its teeth: thus it exercised its fury on every object that it met with. These amorous attacks heated it exceedingly; its body was covered with scales; it afterwards grew thin, and at length died in the month of August, 1779.

It appeared to us that the respiration of this animal was very long, for it kept its breath a considerable time, and breathed only by intervals, between which the nostrils were exactly closed; and in this state they appeared only like two thick lines marked longitudinally on the end of the snout: it opened them merely to give vent to the air by a strong expiration, and then to imbibe it, after which it closed them as before, and often passed more than two minutes between each breathing. The air, in the motion of inspiration made a noise like a very strong snuffing: a kind of white mucus, of a disagreeable smell, almost continually dropped from its nostrils.

This great seal, like all the animals of its kind,

dozed and slept several times a day ; its snoring might be heard at a great distance ; and, when it was asleep, it was not easily awakened. If it was but merely dozing, its master could not readily make it understand ; and it was only by placing some fish near its nose that he could rouse it from its stupor : it then resumed its motions ; and even some vivacity ; it raised its head and the upper part of its body, lifting itself on its two fore palms to the height of the hand which presented it the fish ; for it is not fed with any other aliment, and it was principally with carp, and eels, which it preferred to carp ; these were carefully seasoned, by rolling them in salt ; it consumed about thirty pounds of these fish, alive and sprinkled with salt, in twenty-four hours. It very greedily swallowed the eels entire, and even the first carp that were offered it ; but, as soon as it had swallowed two or three whole carp, it tried to cleanse the rest before it ate them, and, for that purpose, it first seized them by the head, which it crushed between its teeth, after which it let them fall, then opened their belly, and took out the gall with its appendices, and finished by retaking the fish by the head to swallow it.

Its excrements were very fœtid ; they were of a yellow colour, and somewhat liquid, and when solid, were of a round shape. The keeper of this animal assured us that it could live several days, and even a month, without being in the water ; provided, however, that it be carefully washed every evening with clean water, and that clear salt water be given it to drink ; for, when

it drinks sweet water, especially if thick, it is always disordered.

The body of this great seal, like the others of its genus, is nearly of a cylindrical shape; however, it diminishes in size as it approaches the tail, without losing its rotundity. Its total weight might be six or seven hundred pounds; it measured seven feet and a half, from the end of the snout to the extremity of the back fins: it was nearly five feet in circumference, at the thickest part of its body, and only twenty-one inches round near the origin of the tail. Its skin is covered with very short, shining hair, of a grayish-brown colour, chiefly on the neck and head, where it has a speckled appearance. The hair is thicker on the back and sides, than under the belly, where we perceive a great white patch, which ends in a point on the flanks; and it is from this character that we have conceived it ought to be described by the appellation of *great white-bellied seal*.

The nostrils are neither inclined nor placed horizontally, as in terrestrial quadrupeds, but they are situated vertically on the end of the snout; they are three or four inches long, and extend from the top of the muzzle to a finger's breadth above the upper lip: these nostrils are separated about five inches from each other; and, when open, they are each about two inches wide, and then resemble two little ovals contracted at their ends.

The eyes are large, very open, of a brown colour, and like those of an ox: they are placed at

five inches from the end of the nose, and the distance between their internal angles is about four inches: when the animal is a long while out of the water, his blood becomes heated, and the whites of his eyes turn red, especially near the angles.

The mouth is large, and surrounded by thick bristles, or whiskers, almost like fishes' bones. The jaws were furnished with thirty-two very yellow teeth, which appeared to be worn: we counted twenty grinders, eight cutting teeth, and four canine.

The ears are merely two little holes, almost hid beneath the skin: these holes are about two inches from the eyes, and eight or nine from the end of the nose; and, although the opening is scarcely a line in diameter, the animal has a very fine sense of hearing, since it never fails to obey, or to answer to the voice of its master, even at a distance.

The feet, or fore fins, measured from their base to their extremity, are about fifteen inches long, and, when completely stretched out, are equally broad; each of them is provided with five black nails, somewhat curved; and are so shaped, that the middle toe is the shortest. The end of the hind fins is shaped like the others; that is, the middle toe is shorter than those on the sides. They accompany the tail, and are twelve or thirteen inches long, and seventeen inches wide when the membrane is completely expanded; they are thick and fleshy on the sides, thin in the middle, and cut in festoons on the

edges. It had no visible nails on the back fins; but these nails were doubtless deficient from accident only, as this animal tormented itself greatly, and rubbed its hind fins against the bottom of its trough: the membrane even of these fins was worn by the friction, and torn in several places. The tail, which is situated between the two fins, is only four inches long and three broad: it is nearly of a triangular shape, wide at its origin, and ending in a round point: it is not very thick, and appears flat throughout.

This great seal was caught the 28th of October, 1777, in the Adriatic Gulf, near the coast of Dalmatia, in the little isle of Guarnero, two hundred miles from Venice. It was chased several times unsuccessfully, and it had previously escaped five or six times by breaking the fishers' nets. The old fishermen say, that it was known on that coast for more than fifty years; that it had often been pursued; and that they believed it owed its large size to its great age: what appears to confirm this supposition is, that its teeth were very yellow and worn; that its hair was of a deeper colour than that of the generality of the seals with which we are acquainted; and that the whiskers were long, white, and very harsh.

However, several other seals of the same size have been taken in the Adriatic Gulf, and exhibited like this, in France and Germany, in the year 1760. The keepers of these animals, being interested to preserve them alive, discovered the means of curing some of the disorders to which they were liable from their confinement, and

which they probably did not experience in their natural state: for instance, when they lost their appetite, and refused the fish, they dragged them out of the water, and made them take some milk, mixed with treacle; they kept them warm by wrapping them in a blanket; and continued this treatment till the animal recovered its appetite, and received its usual food with pleasure. It often happens that these animals refuse every aliment for the first five or six days after being taken; and the fishermen assert that they would die of inanition, if they were not forced to swallow a dose of treacle and milk.

We shall here add some observations made by M. Sabarot, of la Verniere (doctor of physic of the faculty of Montpellier), on a great female seal, which we conceive to be of the same species as the male that we have described.

“This amphibious animal,” says he, “appeared at Nîmes, in the autumn of the year 1777: it was in a tub of water, and was more than six feet long: its smooth, and somewhat spotted skin, agreeably affected both the sight and the touch: its head was nearly of the shape, but larger, than that of a calf; and its great eyes, brilliant, and full of fire, interested the spectators: it bent its supple neck with ease; and its jaws, armed with sharp and cutting teeth, gave it a formidable air: two auditory holes were perceived, without any external ears: its mouth was of a coral red, and was provided with a very large whisker: two hand-shaped fins were fixed to the sides of the thorax, and the body of the animal ended in

a tail, which was accompanied with two lateral fins, that served it instead of feet. This seal, obedient to the voice of its master, took any position that he desired it : it raised itself out of the water to caress and lick him : it extinguished a candle with the breath of its nostrils, which are perforated with a little slit in the middle of their length : its voice was a dull roaring, sometimes mixed with groaning. Its keeper slept near it when it was dry. The water in its tub was salt, and when it plunged in, it from time to time raised its head to respire : it lived on eels, which it devoured in the water. It died at Nîmes of a disorder like the glanders in horses ; and, in its interior conformation, it appeared to resemble the calf. The following is what I learned from the dissection of this animal : the foramen ovale, which is said to be always open in amphibious animals, was exactly closed by a transparent membrane, like a bag, of a semilunar shape. I could not find the aorta ; its stomach was very strong, and its muscular coat seemed, as it were, marbled : the liver was composed of five lobes, as well as the kidneys, which were eleven inches in length ; their cortical substance was a mass of pentagonal vascular bodies, joined together by a very loose cellular tissue : we separated the four coats of the intestines by maceration, and we clearly saw the cellular membranes, the muscular, tendinous, and villose coat, as well as the interlaced spiral disposition of the holes, which serve for a passage to the blood-vessels that perforate these coats, without the chance of being

injured by the peristaltic motion. The unpleasant smell disengaged by the moist weather, prevented us from following the dissection of this animal any farther; and I have the honour, sir, to offer you the complete stomach of this seal, which I have preserved *."

Having replied to M. de la Verniere, that I felt gratified by his present of the stomach, with the detailed account, and that it appeared probable to me, that the foramen ovale of the heart, which is generally open in marine animals, was closed in this only by its change of habits, and its remaining in the air, M. de la Verniere answered me, the 20th of January, 1780; "That the stomach of this seal had never been injected, and that it was only a simple inflation: this viscus," says he, "appeared to contain some seeds that rattled with the slightest shaking; . . . and, with respect to the membrane which closed the foramen ovale, it was semilunar and bag-shaped: the segment that terminated the concave edge of the crescent, seemed the firmest; the laminae that formed this bag, although pellucid, were organized with regular tissues of fibres: I did not, however, see the blood-vessels; they slid upon each other when pressed by the finger, and seemed of a tendinous texture. I do not know if the change of habits which this animal had contracted, could have formed a membrane of this structure; but it is sufficient, sir, for me, that you

* Lettre de M. Sabarot de la Verniere; Nimes, le 3 Janvier, 1780.

assert the possibility of it as your opinion. Moreover, M. Montagnon, who dissected the seal with me, says he remarked that it had several inflammations in the alimentary canal, and that it appeared to him to have four stomachs. I never saw this animal ruminate, nor ever heard that it did."

M. de la Verniere brought this stomach to Paris in last November, 1780; and I observed that it formed but one single viscus, with the pouches or appendices, and not four stomachs similar to those of ruminating animals.

I have said, in the preceding article, that the great seal, described and figured by Dr. Parsons, in the Philosophical Transactions, No. 469, may be the same as Anson's sea-lion, or our wrinkle-nosed seal; it, however, appears much better to refer it to the white-bellied seal, which we have described, although this last be smaller; but we are not convinced by what this learned physician has said on the interior conformation of this animal, and particularly on its stomach. Dr. Parsons writes me, that the seal, which he described in the Philosophical Transactions, is certainly, in its interior conformation, as different from other seals, as a cow is from a horse; and, he adds, that he not only dissected this great seal, but two little seals of different species; and that he found that these two little seals differed also in the conformation of their internal parts, one of them having two stomachs, and the other but one: he observed to me also, in the same letter, that the species of this

genus are very numerous: that the great seal he had dissected, had a large pouch (*marsupium*) filled with fish; and another pouch, communicating with this, which was full of angular stones; and, besides, two other smaller pouches, containing the white and fluid matter, which passes into the duodenum; and that, certainly, this great seal is, in every respect, a ruminating animal*.

Although Dr. Parsons was a celebrated physician, and has even published some good physical works, we have always doubted the above facts; nor can we believe, on his single testimony, that there are any ruminating animals of the seal kind; nor that their stomachs are like those of the cow: it only appears that, in some of these animals, such as that which M. de la Verniere dissected, the stomach is divided into several pouches, by different entanglements; but that is not sufficient to place the seals among the ruminating animals. Besides, they live on fish only, and we know that the animals which feed on prey do not ruminate; therefore, we may reasonably presume, that the animals of the seal kind have no more the faculty to ruminate than otters and other amphibious creatures.

The large seal, of which Dr. Parsons has given a figure and description, and which was probably brought from the northern seas, seems to be a species distinct from the other two; for, though so young as to have hardly any teeth, it was

* Letter from Dr. Parsons to M. de Buffon; London, May 10, 1765.

more than double the magnitude of the common kind*. M. Klein †, as well as Dr. Parsons ‡,

* Great seal, resembling the common, but grows to the length of twelve feet: (a gentleman of my acquaintance shot one of that size in the north of Scotland.) That described in the Philosophical Transactions was seven feet and a half long, yet so young as to have scarce any teeth. The common seal is at full growth when it has attained the length of six. It inhabits the coasts of Scotland, and the south of Greenland. — *Penn. Synops. Quadr.* p. 341.

Ulsuk. — *Crantz's Greenland*, vol. i. p. 125.

† Klein de Quad. p. 93.

‡ This sea-calf was showed at Charing-cross, London, in the month of February, 1742. The figures given by Aldrovandus, Johnston, and others, being profiles, lead us into two errors: 1st, They make a cubit in the fore limb, which is not visible in any shape from the surface of the body: and, 2dly, make the posterior parts terminate in two fins, which, on the contrary, are actually webbed feet, like those of water-fowl, consisting of five toes, each having three articulations, and ending with nails of a darkish colour. The nails of the fore paws are very considerable, being like the paws of a mole, contrived for crawling upon land, and partly for swimming, by a narrower web between each toe; but the hinder feet are extensive webs, serving alone to drive or row the creature in the waters. The animal, which was a female, died yesterday morning, Feb. 16, and the viscera were as follows: The stomachs, intestines, bladder, kidneys, ureters, diaphragm, lungs, great blood-vessels, and *pudenda*, were like those of a cow. The hairs of the whiskers are very long and clear. The spleen was two feet long, four inches broad, and very thin. The liver consisted of six lobes, each hanging as long and lank as the spleen, with a very small gall-bladder. The heart was long and flabby in its texture in general; having a large *foramen ovale*, and very great *columnæ carnosæ*. In the lower stomach were about four pounds weight of flinty pebbles, of which these I have the honour to lay before you are part; all which are sharp and

have said a great deal concerning this animal in a few words.

Moreover, we have copied the figure of this seal from Dr. Parsons (although it is imperfectly expressed in the Philosophical Transactions), to the end that we may compare it with our white-bellied seal *.

It appears to me, also, that the great seal mentioned by Mr. Crantz †, by the name of *utsuk*, or *urksuk* ‡, may be the same species as that by Dr. Parsons, although it be still larger, since Mr. Crantz says that these *utsuk* seals are found of twelve feet in length and of five hundred pounds weight.

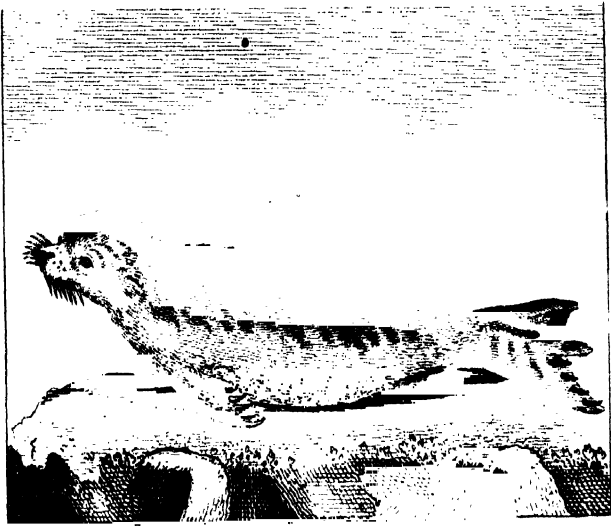
The large seal mentioned by Charlevoix, and which he says is found on the coast of Arcadia,

angular, as if the animal chose them of that form for cutting the food. . . . The uterus is of the horned kind, each *cornu* being considerably thicker than the body, or duct leading to them. . . . The *ovaria* are very large, being granulated on the surface with the *ova*, under a very thin membrane; and the opening into the tubes leading to the *cornua* is a great hole. I have annexed a drawing of this part—as well as of the animal itself, which is thought perfectly like the original. The animal is viviparous, and suckles its young by the *millæ*, like quadrupeds, and its flesh is carnos and muscular. This was very young, though seven feet and a half in length, having scarce any teeth, and having four holes regularly placed about the navel. — *Phil. Trans.* No. 469, p. 383.

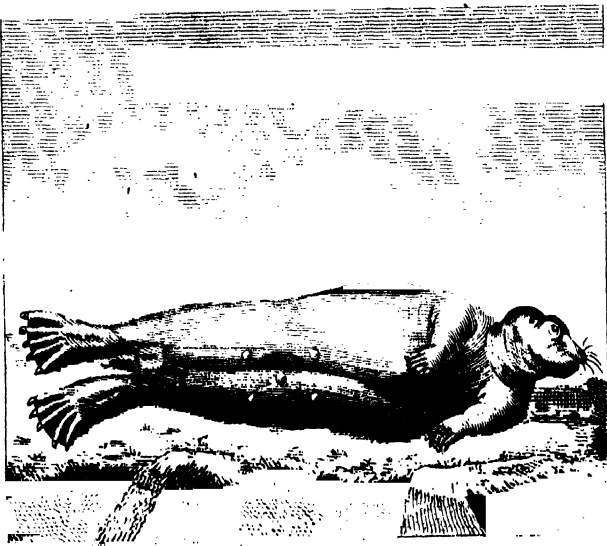
* *Phoca minor*, dentibus caninis rectis, cervice longiore, capite latius referente, palmis anterioribus latis, non digitatis, posterioribus latis ordinariis: The long-necked seal. — *Parson's Phil. Trans.* xlvii p 128. pl. 6.

† *Histoire Generale des Voyages*, tom. xix.

‡ Egede, Dict. Groenl. Copenhag. 1750.



VARIETY *of the* COMMON SEAL.



Warner's

DR. PARSONS'S SEAL.

may also be of the same species; however, he observes that these Arcadian seals have a more pointed nose than the others; and adds, after Denis, that they are so big, "that the bodies of their young exceed our largest hogs in size; that, soon after they are born, the parents carry them to the water, and, from time to time, bring them on shore to suckle them; that the fishery for the young ones is in the month of February, at which season they have not taken the water; that the parents fly at the first alarm, crying out to warn the little ones to follow; but that a great number are killed before they can throw themselves into the sea *."

I confess that these indications are not sufficiently precise for us to decide on the identity or diversity of the species of seals that we have mentioned; we report them here only to serve as a mark to voyagers, to assist them in their researches, and that they may be the better enabled to instruct us.

* Description de la Nouvelle France, tom. iii. p. 143 et suiv.

THE HOODED SEAL*.

Third Species.

THE third species of large seal is that which the Greenlanders call *neitsersoak* †: this animal is distinguished by a hood of skin, in which it can bury its head as far as its eyes. The Danes and the Germans have named it *klap-mutze*, which signifies a bonnet turned down. This seal, says Mr. Crantz ‡, is remarkable for a black wool, which clothes the skin under a white hair: this makes it appear of a fine gray colour:

* CHARACTER SPECIFICUS.

PHOCA CRISTATA. P. capite antice cristato, corpore griseo,
— *Linn. Syst. Nat. Gmel.* i. p. 64. — *Erxleb. Mamm.* p. 590.

LE Klap-MYSEN. — *Egede, Grœnl.* p. 62.

NEITSERSOAK. — *Crantz, Grœn.* p. 164.

LE PHOQUE A CAPUCHON. — *Buff. Hist. Nat. par Sonn.*
xxxiv. p. 56.

HOODED SEAL. — *Penn. Quadr.* ii. p. 279. — *Shaw's Gen.*
Zool. i. p. 262.

HABITAT

in Groenlandia australiori, et Newfoundland.

W.

† *Phoca majoris generis, cujus caput cute crassiori mobili tegitur, quâ faciem contra ictus tuetur.* Egede, ubi supra.

‡ *Histoire Generale des Voyages, tom. xix. p. 61.*

but the character which distinguishes it from other seals, is the hood, of a thick and downy skin, which it has on the forehead, and which they call *hide muzzle*, because the animal has the power to lower this skin over the eyes, to defend them from the whirlwinds of sand and snow in stormy weather.

These seals regularly make two voyages a year; they are very numerous in Davis's Straits, where they remain from September to March; they then go away to shore for the purpose of procreation, and return with their little ones in June, very thin and exhausted. They go off a second time in July, to go to the northward, where they probably find more abundant nourishment, for they return, very fat, in September. Their leanness in May and June seems to indicate these months as the season of their amours; and, at this time, they neglect their food, and fast, like the lions and sea-bears.

THE CRESCENT SEAL*.

Fourth Species.

THE fourth species of great earless seal, is called *attarsoak*, by the Greenlanders: it varies from the preceding in some characters; and its name, in the Greenland tongue, changes as its hair acquires different tints. The fœtus, which is quite white, and covered with woolly hair, is named *iblau*: during the first year, the white decreases, and the animal is called *attarak*: in the second it becomes gray, and the seal bears the name of *atteitsiak*: in the third year it varies still more, and is then called *aglektok*: it is spotted

* CHARACTER SPECIFICUS.

PHOCA GROENLANDICA. P. capite lævi inauriculato, corpore griseo, lateribus luna nigra. — *Linn. Syst. Nat. Gmel. i. p. 64.* — *Erclcb. Mamm. p. 588.*

ATTARSOAK. — *Crantz, Groen. p. 163.*

LE PHOQUE A CROISSANT. — *Buff. Hist. Nat. par Sonn. xxxiv. p. 58.*

HARP SEAL. — *Penn. Hist. Quadr. ii. p. 279, pl. 99.* — *Shaw's Gen. Zool. i. p. 262, pl. 71.*

HABITAT

in Groenlandia et Newfoundland, nec non circa Kamtschatkam. Forte in lacu Baikal. W.

in the fourth, and goes by the name of *milektok*; and it is not till the fifth year that the hair acquires a fine whitish-gray, and two black crescents appear on the back, the points of which are opposite; the seal is then in full vigour, and takes the name of *attersodk* *. I have thought proper to mention all these different names, that the voyagers, who frequent the coasts of Greenland, may discriminate these animals.

The crescent seal is clothed with strong stiff hair: its body is thickly covered with fat, from whence they obtain an oil, which, in taste, smell, and colour, resembles old olive oil †.

Besides, it appears to me that we may refer this animal to the third species of seal noticed by M. Kracheninnikow ‡, which, says he, has great cherry-coloured circles on a yellowish fur, and which is found in the Eastern Sea. M. Pallas §,

* Besides these names, which denote the species, or varieties of seals, the Greenland tongue has others, which refer to several particulars in the history of these animals; *amiam* is a flock of seals; the seal when playing on the surface of the water and swimming on its back, is called *nullourpok*; dozing on the water stupified by heat, *terlikpot*; it is named *outok*, when sleeping on the ice. The hole which the seal opens from beneath the ice with its claws, to breathe through, is *aglo*: the short javelin with which the Greenlander strikes it, is *iperuk*, and the man who crawls on his belly for this purpose, *aurnarpok*: *outtulliarok*, the hunter in his little boat, who pursues them a great way. The skin, stript, is called *erisak*, the oil drawn from their fat, *igunak*. — *Recueilli par M. l'Abbé Bexon, de la Lecture du Dictionnaire Groenlandois.*

† Histoire Generale des Voyages, tom. xix. p. 61.

‡ Id. ibid. p. 256.

§ Voyage de Pallas, troisieme partie, p. 91.

also, refers a seal to this species which they sometimes take at the mouth of the Lena, the Oby, and the Jenessy, and which the Russians call *sea-hare* (*morskoizaëtz*), on account of its whiteness, the hares being quite white, during the winter, in that country. If this last animal is in effect the same as the *attersoak* of M. Crantz, and as the seal of M. Kracheninnikow, we perceive that it is not only found in Davis's Straits, and about Greenland, but also on the coasts of Siberia as far as Kamtschatka *. Finally, as the colour of the crescent seal varies according to its age, it may be that the gray, spotted, and circled seals, mentioned by voyagers from the north, were only the same animals, and all of the species of crescent seal seen at different ages †, and in this case

* The sea-hares, of the Northern Ocean, of which M. Pallas procured some skins, are as white as snow, and shine like silver. They have longer hair than the other seals, in-somuch, that, upon raising the head and feet, their skin may be easily taken for that of a young sea-bear. It is generally in the spring that the Samoiedes amuse themselves by watching the sea-hares, near the mouth of a river, when they come out of the water, through the holes in the ice which they make for air. Near these openings they place planks, to which they adjust a cord: they then hide themselves behind a piece of ice, and, as soon as the seal comes upon the ice, they pull the board over the hole, and run to kill it.—*Voyage de Pallas, edit. Franc. 4to, p. 123.*

† It appears (to judge by what Charlevoix says, *Histoire de la Nouvelle France, t. iii. p. 143*) that this crescent seal is found also in the seas near the eastern coasts of North America. "These animals," says he, "have the hair of divers colours; there are some entirely white, and all are so when born; in proportion as they grow old, some become black, others red,

we shall be justified in referring to it also another species of seal, which, according to M. Krachennikow, has a yellowish-white belly; the rest of the skin studded with spots like those of the leopard, and whose young ones, when just born, are as white as snow*.

and others blend all these colours together." We see that this passage refers sufficiently to the crescent seal, of which we have been speaking, and believe that it ought to be applied to that animal.

* M. Lepechin, who has given a very good and particular account of the crescent seal in the *Journal de Physique* for February, 1764, says that this animal seeks the coldest shores; also, that it does not enter the White Sea until it is covered with ice, and only at the end of April, after having brought forth and reared its little one, for the female has but one at a birth: it afterwards returns into the vast Frozen Ocean. The young remain till the ice separates from the shore, when they rejoin their family.

Crescent seals are found all the year round, according to the fishermen, about Nova Zembla, where there is a great quantity of ice: they are taken for the sake of the skin and fat. The skin of the full grown seals is used for coverlets; of that of the young seals, in the isle of Solowki, they make boots: it has this advantage over calves' skin, that, when it is well prepared, it is almost water proof. The fat is also used by the curriers.

W.

THE NIET-SOAK SEAL*.

Fifth Species.

THE fifth species of earless seal is called, by the Greenlanders, *niet-soak*: it is smaller than the preceding: its hair is mixed with brown bristles, as stiff as those of a hog: the colour is variegated with great spots, and it stands on end like that of the sea-bears †.

* Neither this, nor the two following seals, are distinguished specifically from the rest, by other authors.

W.

† *Phoca majoris* generis, maculis majoribus distincta (item vestis hirsuta e pellibus phocarum confecta) *neitsik-saik*. *Phoca minor* speciei supra memoratæ, *atak*. Species phocæ cum maculis majoribus *ateit-siak*, minor ejusdem speciei, *ntarak*; catulus generis superioris, *atestak*.—*Dict. Groenl. Copenhagen. 1750.*

THE LAKTAK SEAL OF KAMTSCHATKA.

Sixth Species.

THE sixth species is that called by the Kamtschatdales *lakhtak* *. It is not taken lower than the fifty-sixth degree of latitude, either in the *Mer de Pengina*, or in the Eastern Ocean; and appears to be one of the largest of the seal kind.

* Kracheninnikow.—*Histoire Generale des Voyages*, t. xix.
p. 260.

THE GASSIGIAK SEAL.

Seventh Species.

THE seventh species of seal without external ears, is called *kassigiak* by the Greenlanders: the skin of the young ones is black on the back, and white under the belly, and that of the old ones is generally spotted. This species does not migrate, but is found, throughout the year, at Bals-river.



SEAL.

THE COMMON SEAL

Eighth Species.

THE eighth species is the common European seal†, of which we have given a figure, and

* CHARACTER SPECIFICUS.

PHOCA VITULINA. P. capite inauriculato et cervice lævi, corpore fusco.—*Linn. Syst. Nat. Gmel.* i. p. 63.—*Schreb.* iii. p. 303, pl. 84.—*Erxleb. Mamm.* p. 583.

Vitulus maris oceani.—*Rondel. Pisc.* p. 458, cum fig. mala.

Phoca seu vitulus maris oceani.—*Rondel. Gesn. Aquat.* p. 829, fig. p. 830. *Rondel. aliaque mala.*

Phoca seu vitulus marinus.—*Aldrov. Pisc.* p. 722, fig. p. 724, mediocr.—*Jonst. Pisc.* p. 221, tab. 44, figg. mediocres.—*Ray's Quadr.* p. 189.

PHOCA OCEANICA—*Steller, Nov. Comm. Petrop.* ii. p. 290.

VEAU MARIN OU LOUP DE MER.—*Belon, Poiss.* p. 25, fig. 26.

LE PHOQUE COMMUN.—*Buff Hist. Nat. par Sonn.* xxxiv. p. 68, pl. 2, fig. 2.

COMMON SEAL.—*Penn. Hist. Quadr.* ii. p. 270.—*Penn. Br. Zool.* i. No. 37, pl. 12.—*Shaw's Gen. Zool.* i. p. 250, pl. 70.

HABITAT

versus litora in mari, præcipue boreali, circa Spitzbergiam, Groenlandiam, Americam borealem, Russiam, Norvegiam,

which is indifferently called *sea-calf*, *sea-wolf*, and *sea-dog* †, these same names are also given to some other seals which we shall mention. This species is found not only in the Baltic Sea, and the open ocean, from Greenland to the Canaries, and to the Cape of Good Hope; but also in the Mediterranean and Black Sea.

In this species there are differences, which are, perhaps, only varieties, depending on climate, especially as in places where the seals abound,

inque omni mari balthico; in litoribus Belgii, Angliæ, Galliæ. Forte eadem species ex circa novam Zeelandiam. IV.

Common seal with large black eyes; large whiskers; oblong nostrils, flat head and nose; tongue forked at the end; two canine teeth in each jaw, six cutting teeth in the upper jaw, and four in the lower; no external ears; body covered with thick short hair; short tail and five palmated toes on each foot, furnished with strong sharp claws. The usual length is from five to six feet. The colour is very various, dusky, brinded, or spotted with white and yellow. — *Penn. Synops. Quadr.* p. 339.

† The French sailors call it *veau-marin*, or *loup-marin*: the English, *common seal*, that is to say, *phoque commun*: the Spaniards and Portuguese, *lobo de mer*. Note communicated by Mr. Forster: but these names of sea-calf and sea-wolf have been equally applied to all the seals.

‡ This is the seal of our ocean: it is large, and of a gray colour. We believe that this is the animal which the Germans name *rubbe* or *sall*; the Swedes *sial*; the Norwegians *kaube*: and it is certainly the same that the members of the Academy of Sciences have noticed under the name of sea-calf. (See part. i. p. 189, pl. 27, of their *Memoires pour servir à l'Histoire des Animaux*.) Lastly, it appears to us that it is also the same which Laët has figured, and which he calls *chien mdrin*, or *phoque*. (*Descript. des Indes Occidentales*, p. 41.) I shall not quote other authors, because they have either copied these, or have given bad figures.

we find them larger and smaller, thicker and thinner, and of various colours, according to their sex and age*.

It is in this species that we must seek for the *phoca* of the ancients, which, as Aristotle expressly says, *has no external ears, and only auditory holes*.

All the characters which the ancients ascribe to their seal, agree with a smaller variety of common seal, which they frequently compare to the beaver and otter; they say that its hair waves, and, from a natural sympathy, follows the motions of

* Canities ut homini et equo, sic quoque vitulo marino accidit. — *Olai. Magn. de Gent. Sept.* p. 165. The sea-calves are covered with short hair of various colours: some of them are black and white, others yellow, gray, and even red. — *Descript. de la Pêche de Baleine, par Zorgdrager*, p. 191. Near the bay of St. Mathew, in Magellan's Straits, we discovered two islands, where the sea-wolves were so numerous, that we could have loaded our five vessels with them in two hours. They were of different colours, and of the size of a calf. — *Hist. des Navigat. aux Terres Australes*, tom. i. p. 127. The sea-calves of Spitzbergen have their heads of different figures: some of them are rounder, others longer and thinner under the muzzle. . . . They vary in colour. . . . Some of them are spotted like tigers; others are spotted with black and white: some of them are yellow, others gray, and others red. . . . In some the pupils of the eyes are of a crystalline colour, in others white, in others yellowish, and in others reddish. — *Recueil des Voyages du Nord*, tom. ii. p. 118. The skin of the sea-calf is covered with short hair of various colours. Some of these animals are white, as the whole of them are when first brought forth; and, as they grow up, some become black, others red, and others have a mixture of all these colours. — *Charlevoix*, tom. iii. p. 147.

the sea; that it lies backward when the tide ebbs, and forward when it flows *; and this singular effect continues long after the skin has been separated from the animal. Now, this quality could never have been imagined with regard to our seals or those of the north; because the hair of both is short and stiff. But it agrees, in some measure, with the small seal, whose hair is waving, and much longer and suppler than that of the other kinds. In general, seals of the southern, have finer and softer hair than those of the northern seas †. Besides, Cardan affirms positively ‡, that this quality, which had been considered as fabulous, is found to be real in the Indies. Without giving more faith to Cardan's assertion than it deserves, it at least shows, that this quality is peculiar to the Indian seal. Perhaps the appearance, if it exists, is electrical; and both ancients and moderns, being ignorant of the cause, have ascribed the effect to the ebbing and flowing of the sea. But, however this matter

* *Pelles eorum etiam detractas corpori sensum æquorum retinere tradunt, semper æstu maris, recedente inhorrescere.* — *Plin. Hist. Nat.* lib. ix. cap. xiii. Severinus asserts, that he saw this wonderful appearance; but he expresses it with such exaggeration as destroys its credibility. "When the north wind blows," says he "the hairs which had been raised by the south wind, fall down so close that they seem to disappear." — *Mont. pour servir à l'Hist. des Animaux* part. i. p. 193.

† At the island of Juan Fernandes, the sea-calves have a fur so fine and short, that I have seen nothing equal to it elsewhere. — *Dampier*, vol. i. p. 118.

‡ Cardan de Subtilitate, lib. x.



SMALL SEAL.

stands, the reasons already given are sufficient to found a presumption that the small seal is the *phoca* of the ancients. It is likewise probable that it is the same with Rondeletius's *Mediterranean seal**, which, he remarks, has a body proportionally longer and thinner than the seal of the ocean.

Aristotle knew this animal; for he tells us, that it is of an ambiguous nature, an intermediate creature between aquatic and terrestrial animals; that it is an imperfect quadruped; that it has no external ears, but only two conspicuous auditory passages, and that it has a forked tongue, paps for suckling, and a small tail like that of the stag. But he seems to have been deceived when he says, that this animal has no gall-bladder. Dr. Parsons, indeed, acknowledges, that the gall-bladder of the large seal he has described was very small. M. Daubenton, however, found, in our seal, which he dissected, that the gall-bladder was proportioned to the size of the liver; and the gentlemen of the academy found a gall-bladder in the seal they describe; but mention not that it was remarkably small.

Aristotle, besides, could have no knowledge of the large seals produced in the Frozen Sea; because, in his time, the whole north of Europe and of Asia were entirely unknown. The Greeks, and even the Romans, regarded France and Germany as their north. The Greeks, particularly, knew none of the animals peculiar

* Rondelet. de Piscibus, lib. xvi.

to these countries. Hence Aristotle, who mentions the *phoca* as a common animal, can mean nothing else than the Mediterranean seal.

M. Kracheninnikow and M. Pallas* say, that there are common seals even in the Caspian Sea, and in lake Baikal where the water is sweet, as well as in the lakes Onega and Ladoga in Russia; which seems to prove that this species is spread almost universally, and that it may live equally in the sea and in the sweet waters, in cold climates and in temperate.

The voice of the seal has been compared to the barking of a hoarse dog: when young, it is clearer, and resembles the mewling of a cat. The young, when carried off from the mother, mew continually, and sometimes die of hunger rather than take the food that is offered to them. The old seals bark at those who strike them, and use every effort to bite and avenge themselves. In general, they are not very timid, and even show marks of courage. Instead of being afraid of lightning or thunder, it seems to entertain them. During a tempest, they leave the water, and even the ice, to avoid the shock of the waves; and they come upon the land to amuse themselves with the storm, and to receive the rain, of which they are exceedingly fond. They have naturally a disagreeable smell, which is felt at a great distance, when numbers of them are collected in one place. When pursued, they frequently void their excrements, which are

* Voyage de Pallas, tom. iii.

yellow, and diffuse an abominable odour. They have a great quantity of blood; and, as they are likewise loaded with fat, they are heavy and sluggish. They sleep much, and very sound*. They love to sleep in the sun, upon boards of ice, and upon rocks; and they may be approached without wakening them. This is the most common mode of seizing them. They are seldom shot, because, though the ball enters their head, they do not die suddenly, but spring into the water, and the hunter loses them. As they may be approached very near when asleep, or when at a distance from the sea, their motion being slow, they are assaulted with clubs and poles. They are very robust and tenacious of life. "They die not easily," a traveller remarks; "for, though mortally wounded, their blood almost entirely exhausted, and their skin taken off, they still live; and it is frightful to see them in this condition weltering in their blood. We killed one which was eight feet long: after skinning it, and taking out most of the fat, notwithstanding all the blows it had received on the head and muzzle, it still endeavoured to bite, and even seized a cutlass with nearly as much vigour as if it had not been wounded. We afterwards thrust a sword across the heart and liver, from which there issued as great a quantity of blood

* Nullum animal graviore somno premitur. Pinnis quibus in mari utuntur, humi quoque pedum vice serpunt; sursum deorsumque claudicantium more se moventes. . . . Capitur dormiens vitulus marinus, præsertim humano mucrone, quia profundissime dormit. — *Ol. Magn. de Gent. Sept.* p. 165.

if they are but wounded, they are caught without difficulty, but they are not easily killed, if they first go to the bottom, where great dogs, trained to this chase, will dive for them to the depth of seven or eight fathoms*.”

These eight or nine seals, which we have noticed, are chiefly found near the most northern shores of the European, Asiatic, and American seas; whilst the sea-lion, sea-bear, and even the white-bellied seal, are found equally dispersed in both hemispheres. All these animals, except the wrinkle-nosed and white-bellied seal, are known to the Russians and other northern people by the names of dog, and sea-calf†: it is the same at Kamtschatka, at the Kourile Islands, and among the Koriaks; where they are called *kolkha*, *betarka*, and *memel*; which equally signifies sea-calf, in the three languages.

“ Their skin,” says Mr. Crantz, “ is strong and shaggy, like the terrestrial quadrupeds, except that the hair is thick, short, and for the most part shining, as if it was oiled. The two fore-feet of these animals are formed for walking, those behind for swimming; each foot has five toes,

* Description de la Nouvelle France, tom. iii. p. 143 et suiv.

† The French also call them *veaux-marins*, and sometimes *loup-marins*: and the Canadian fishermen name some brewers, because they agitate the water, and make a whirlpool; others *nau*; and to another they give the name of great head; but we must not confound them with the sea-bear, which several voyagers have called *calf*, and *sea-wolf*, although it differs essentially in the ears, which project externally.

and every toe four joints, armed with nails for climbing the rocks, or clinging to the ice: the toes of the hind-feet are so webbed, that in swimming, they spread them like a fan. They are of the amphibious kind; the sea is their element, and fish their food: they sleep on land, and even snore so deeply in the sun, that it is easy to surprise them. They run with their fore-feet, and jump, or fling themselves with the hind ones; but so quick that a man can hardly catch them. They have sharp teeth and strong hairs in the snout, like the bristles of a wild boar. . . . Their body is thick in the middle, and terminates conically at both ends*."

These animals copulate and bring forth on the rocks, and sometimes on the ice: they suckle their little ones in the water, but much oftener on land†. They suffer them now and then to go to sea, afterwards they bring them on shore, and thus exercise them till they are able to swim the longest voyages.

These animals not only afford the Greenlander food and raiment‡, but their skins are used to

* *Histoire Generale des Voyages*, tom. xix. p. 60 et 61.

† *Charlevoix, Descr. de la Nouv. Franc.* tom. iii. p. 143 et suiv.

‡ The Russians and Kamtschatdales also derive very great benefit from seal hunting: they make candles of their fat, which the natives prefer to every other grease for seasoning their food: they likewise eat the flesh, and dry it in the sun to preserve during the time when they cannot fish: with the skins they make soles for their shoes: and the Korelli, the Olutores, and the Tschukotskoi make boats of them. — *Histoire de Kamtschatka*, par M. Kracheninnikow, tom. i. p. 277.

cover their tents and their canoes; they also burn the oil in their lamps, and they sew their garments together with the nerves and tendinous fibres: the guts, well cleaned and thinned, are used, instead of glass, for their windows, and the bladder of these animals serves them for a vessel to hold their oil; they dry the flesh to preserve it during the time when they can neither hunt nor fish; in a word, seals are the Greenlander's principal resource, and it is on this account that they are trained when young to the chase of these animals, and that those who succeed best, acquire as much glory as if they had distinguished themselves in battle

M. Kracheninnikow, who saw these animals at Kamtschatka, says that they sometimes come up the rivers in such abundance, that the little isles scattered about the sea-coasts are covered with them*. In general, they seldom go more than twenty or thirty leagues from the islands, except when they go their voyages up the rivers in pursuit of the fish which they feed upon. They copulate unlike quadrupeds, the females lying on their backs to receive the male. The great species, as we have said before, produce but one young at a time, and the little species two. According to Kracheninnikow, all these animals have a strong disagreeable voice; the young ones make a plaintive noise, and all of them grunt and murmur in a hoarse tone incessantly. As soon as they are wounded, they become dan-

* *Histoire Generale des Voyages*, tom. xix. p. 256.

gerous; then they defend themselves with a sort of fury, even when their skull is broken into several pieces*.

From all that we have said, we find that the genus of seal is not only pretty numerous in species, but that each species is also very numerous in individuals, if we may judge by the quantity of those which voyagers have found collected together on the newly discovered shores, and at the extremities of both continents. The desert coasts are, in effect, the last asylums of these marine colonies, which avoid the inhabited shores, and only appear dispersed in our seas; and, in reality, these bands of seals, these flocks of Old Proteus, which the ancients have so often painted, and which they ought to have seen in the Mediterranean, since they knew so very little of the ocean, have almost disappeared, and are only found dispersed about our coasts, where it is but fair that they should enjoy that peace and security which is wanting in their great societies: they must go elsewhere to seek that liberty which is necessary to all social reunion, and which they can find only in less frequented seas, and under the frigid zones of both poles.

* "They are," says M. Kracheninnikow, "lively and courageous. I have seen one that was taken with a hook at the mouth of the great river, fling itself on our people very ferociously, even after its skull was fractured; they could hardly drag it on shore, as it struggled to throw itself into the river, and when it found that the thing was impossible, it began to cry, and the more they struck it, the more ferocious it became."—*Histoire de Kamtschatka*, tom. i. p. 275.

THE SEA-BEAR*.

ALL the seals that we have hitherto mentioned have only auditory holes, and no external ears; the sea-bear is not the largest of eared seals, but it is the most abundant species, and has the greatest range†. It is quite a different

* CHARACTER SPECIFICUS.

PHOCA URSINA. P. capite auriculato. — *Linn. Syst. Nat. Gmel.* i. p. 62. — *Schreb.* iii. p. 289, pl. 82. — *Erxleb. Mamm.* p. 579.

Phoca (ursina) nigricans, naso simo, capite auriculato, pedibus anterioribus pinniformibus. — *Shaw's Gen. Zool.* i. p. 265.

URSUS MARINUS. — *Steller, Nov. Comm. Petrop.* ii. p. 331, tab. 15.

L'OURS MARIN. — *Buff. Hist. Nat. par Sonn.* xxxiv. p. 94, pl. 3.

URSINE SEAL. — *Penn. Hist. Quadr.* ii. p. 281, pl. 100. — *Shaw's Gen. Zool.* i. p. 265, pl. 72.

HABITAT

in Kamtschatkæ maritimis inter Asiam et Americam proximam, primario in insula Beringii. A Junio ad Septembrim inhabitant insulas inter utrumque orbem, in quibus coeunt atque pariunt: mense Septembri emaciatæ adeunt litora Asiatica atque Americana inter gradum latitudinis 50 et 56.

W.

† They are seen in the island of Juan Fernandes, situated in fifty-six degrees of southern latitude; at the island of Saint



W. H. S.

animal from the white sea-bear, which we have described elsewhere; this last being a quadruped of the terrestrial bear kind, and the subject of our present consideration a truly amphibious animal of the family of seals. Mr. Forster, who saw several of these creatures in his voyage with captain Cook, and who made drawings of some, obligingly gave me the design from which we have engraved our plate: he also communicated to me several historical facts respecting their natural habits, and these observations, added to those of M. Steller and some other voyagers, are sufficient to convey a pretty exact knowledge of this animal, which till now has been confounded with other seals.

The sea-bear species seems to be found in all the oceans; for voyagers have met with, and recognised these animals, in the equatorial seas, and under all latitudes, even to the fifty-sixth degree, in both hemispheres. Dampier is the first who has mentioned it, under the name of *sea-bear*; several other navigators have called it common seal, because in effect it is very commonly found in all the seas, southern or northern; but we must observe that this name has been improperly applied to it, since it belongs specifically to the common seal, inhabiting our European

Pierre, at Sandwich Islands, on the coast of Patagonia, the Malouin Islands, at New Holland, New Guinea, the Galapagos Islands, situated almost under the equator, and lastly, from Cape Horn all along the American coasts, even to Kamtschatka.

coasts, which is by no means so large, and which, moreover, has no external ears.

It appears that the sea-bear, of all the animals of this genus, is the one which makes the longest voyages: its constitution is not subject to injury from the influence of any climate: we find it in every sea and about the almost desert islands: it is met with in numerous flocks in the Kamtschatkan sea, and on the inhabited islands between Asia and America. M. Steller, after his unfortunate shipwreck, had time to observe them on Bering's Island*: he informs us that in the month of June these animals quit the coasts of Kamtschatka, and that they return at the end of August or beginning of September, to pass the autumn and winter†. When they depart, in June, the females are ready to drop their young; and it appears that the object of their voyage is to remove, as far as possible, from all inhabited shores, that their little ones may

* There is such abundance of these animals in Bering's Island, that they cover all the shore, which frequently obliges the travellers to quit the flats, and climb the rocks and mountains. It is proper to observe that they are found only on the southern coast, which is opposite to Kamtschatka; this, perhaps, may be because it is the first land they meet with in going from Cape Kranotzkoi towards the east.—*Hist. du Kamtschatka, par Kracheninnikow*; Lyon, 1767, tom. i. p. 307.

† M. Steller says, that a single family of these animals is often composed of 120 individuals; that this family not only keep together on the shore, but also while swimming in the sea.

remain in peace, and that they may afterwards indulge themselves, undisturbed, in amorous pleasures, for the females are in heat a month after they bring forth. All return very thin in August; the stomachs and intestines of those which M. Steller dissected in that season were empty, and he imagines that they eat little or nothing during their amours. This season of love is also that of war, the males fight furiously to maintain their family, and preserve their property; for, when a male sea-bear attempts to carry off from another one of his adult daughters, or wives, or to drive him from his place, the combat is bloody, and generally ends in the death of one or both.

Each male has commonly eight or ten females, and sometimes fifteen or twenty. He is very jealous, and watches them with great care: he generally places himself at the head of his family, which is composed of the females and their little ones of both sexes: each family keeps separate, and, although these animals are by thousands in some places, the families never mix, but each forms a little troop with the chief male, who rules as master, at the head. It sometimes happens, that the chief of another family comes to assist one of those already engaged in combat, and then the fight becomes more general, and the victor possesses the whole family of the vanquished, which he unites to his own.

These sea-bears are not afraid of any other marine animals, however they seem to bend be-

fore the sea-lion, for they carefully avoid him and never approach him, although he often establishes himself on the same shore *: but they make cruel war with the sea-otter (*saracovienne*), which, being less and weaker, cannot defend itself against them. These animals, which appear very ferocious, from the combats in which they engage, are, however, neither dangerous nor formidable; they do not even try to defend themselves against mankind, and are only to be feared when reduced to despair, and when they are so closely pursued that they cannot escape: they are likewise put out of humour when they are plagued while enjoying their females; they will suffer themselves to be knocked down rather than desist.

The manner in which they live and behave among themselves is very curious, they appear to be passionately fond of their family; if a stranger comes to carry off one of them, they testify their regret by shedding tears; they also cry when some one of their family, which they have ill treated, approaches to ask pardon. Thus, in these animals, it seems that tenderness succeeds to severity, and that it is always with re-

* "We observed (on a little island near Staten Land) that the bears and sea-lions, although encamped on the same shore, always continued at a great distance from each other, and that they did not communicate together." — *Forster's Voyage*.

"The sea-lions occupy the greatest part of the coast; the sea-bears inhabit the interior of the island." — *Ibid*.

gret that they punish either their females or their little ones *. The male appears to be at once a good father of a family and an imperious chief of his troop: he is jealous to preserve his authority, which he never uses but when it is necessary.

The young males live for some time in the bosom of their family, and quit it when they are full grown, and strong enough to put themselves at the head of some females, whom they oblige to follow, and this little troop soon becomes a more numerous family. As long as they remain in full vigour, and in a state to enjoy their females, they govern them as masters, and never quit them; but, when old age has reduced their strength and extinguished their desires, they abandon their females, and retire to live in solitude: ennui or regret seems to make them more ferocious; for these solitary old males express no fear, neither do they fly, like the others, at the sight of mankind †: they grunt, show their

* M. Steller says that these animals beat their family for the slightest fault, but that it is sufficient for a female or a young one, when they offend, to caress the male by licking his feet, to disarm his wrath.

† "The old males," says Kracheninnikow, "sometimes sleep a whole month without taking any food; they are very fierce, and attack passengers; and they are so obstinate, that they will rather suffer death than quit their place. When they perceive a man approaching, some one attacks him, and the others remain near to defend themselves: they bite the stones which are thrown at them, and run upon the person who throws them. Even when their teeth are broken, and their eyes put out, they will not budge from their place.

teeth, and even daringly rush upon the person who attacks them, without ever drawing back or running away; insomuch, that they will rather suffer themselves to be killed than retreat.

The females, less courageous than the males, are so attached to their young, that, even in the most pressing dangers, they will not abandon them, till after they have exerted all their

Moreover, none dare abandon his post, for if he does, the others devour him: if any one appears willing to retire, the others close upon him to prevent his flight; and if any one doubts the courage of his comrade, or suspects him of running away, he attacks him."—*Histoire de Kamtschatka*, tom. i, p. 299.

"The seals and sea-lions were likewise killed with great difficulty, but their snout was by far the most sensible part. Dr. Sparrman and myself were near being attacked by one of the oldest sea-bears, on a cliff where several hundreds lay assembled, which all seemed to wait the issue of the fight. The doctor had discharged his musket at a bird, and was going to pick it up, when this old bear growled and snarled, and seemed ready to oppose him. As soon as I was near enough, I shot the surly creature dead, and at that instant the whole herd, seeing their champion fallen, hurried to the sea; and many of them hobbled along with such precipitation, as to leap down ten or fifteen yards perpendicular upon the pointed rocks on the shore, though without receiving any hurt, which may be attributed to their fat easily giving way, and their hide being remarkably tough."—*Forster's Voyage*, ii. p. 519.

"This is a frightful looking amphibious animal, and bites with such strength, that it can divide the handle of a half-pike, as we have experienced: it does not fly from the presence of two or three men; when provoked, it will even dare to attack them."—*G. Spilbert, Recueil des Voyages qui ont servi a l'Etablissement de la Compagnie des Indes Orientales*, ii. p. 348.

strength and courage, to guard and preserve them; and often, although wounded, they will carry their young in their mouth to save them.

M. Steller asserts that the sea-bears have several different cries, all relative to the circumstances or passions which agitate them: when they are quiet on the shore, it is easy to distinguish the females and young from the old males, by the sound of their voice; of which the melange resembles (at a distance) the bleating of a flock composed of sheep and calves: when they are in pain, or are fatigued, they bellow, or roar; and when they have been beaten, or vanquished, they groan and make a whistling, somewhat like the cry of the sea-otter. In their combats they roar and tremble like the lion; and, lastly, when happy, and after a victory, they make a little sharp noise, which they repeat several times together.

They have all their senses in perfection, especially that of smelling, for they are warned by this sense even when asleep, and they awake when we advance towards them, although they be yet at a distance.

They do not move so slow as the conformation of their feet appears to indicate; we must even run well to overtake them*: they swim

* Steller, *Nov. Com. Petrop.* tom. ii. ann. 1751. However, M. de Pages, who saw these animals at the Cape of Good Hope, where the species is small, says that they move very slowly, and that, as they are ~~very~~ fat and full, they can hardly turn themselves upon land.—*Note communicated by M. de Pages, ensign of a king's ship.*

very rapidly, and in an hour will accomplish an extent of more than a German mile*: when they sport near the shore they make different evolutions; sometimes they swim on the back, and sometimes on the belly; they sometimes appear even to support themselves almost in a vertical position; they roll over, plunge, and occasionally fling themselves several feet out of the water†: in the open sea they generally remain upon their back, so, however, as not to show their fore-feet, but only those behind, which they now and then raise out of the water; and, as they have the foramen ovale of the heart open, they can remain a long while under water without respiring. At the bottom of the sea they catch crabs and other crustacea, and shells, which they feed upon when fish is scarce.

The females bring forth, in the desert islands of the northern hemisphere, in June; and as they are in heat in the July following, we may conclude that the time of gestation is at least six months. They generally bring one little one at a time, and very rarely two: the males, when born, are larger and blacker than the females: they become bluish, and spotted between the

* The sea-cat (sea-bear), says M. Kracheninnikow, swims so quick that it will go, with ease, six verstes in an hour. When it is wounded, it seizes the fisherman's boat with its teeth, and drags it along with such rapidity, that it may be said to fly on the water: it often happens that the boat is overset and the people drowned, unless the steersman is careful, and observes the route which the animal takes. — *Histoire de Kamtschatka*, i. p. 306.

† Note communicated by M. de Pages.

fore-legs, as they grow old*: both males and females are born with their eyes open, and with thirty two teeth, but the canine teeth, or tusks, do not appear till four years after. The mothers suckle their young till they return to their usual haunts, that is to say, till the end of August: these little ones, being already strong, often play together, and when they happen to fight, the conqueror is caressed by the father, and the vanquished protected and secured by its mother.

They generally copulate in the evening: an hour before this happens, both the male and female enter the water; they swim gently together, and afterwards return to land. The female, who generally leaves the water first, turns upon her back, and, in that situation, the male covers her: he appears very ardent and active, and presses the female so strongly with his weight and by his movements, that she is often so buried in the sand that only her head and feet appear: during this time, which is long enough, the male is so engaged, that he may be approached without fear, and even touched with the hand†.

The hair of these animals, which is thick and long, stands on end: it is black on the body, and

* Histoire du Kamtschatka, par M. Krachènnikow, t. i. p. 296.

† "I have seen one of these animals," says M. Steller, "remain attached more than a quarter of an hour: I struck him with my fist the blow made him look at me, and put him in a passion, which he testified by a terrible roaring; but this did not hinder him from continuing and finishing his work."—*Nov. Comm. Petrop.* ann. 1751, t. ii.

yellowish, or reddish, on the feet and the flanks, under this long hair, there is a sort of felt, that is to say, a second hair, shorter and very soft, which is also of a reddish colour. But, in old age, the longest hairs become gray, or white, at the tip, which makes them appear of a somewhat sombre-gray colour: they have not long hairs about the neck, like a mane, as in the sea-lions. The females differ so strongly from the males, as well in colour as in size, that we should be inclined to take them for animals of another species. Their long hairs vary; they are sometimes gray, and sometimes reddish: the young, when born, are of the finest black; of their skins they make furs, which are much esteemed, but, in their fourth year, they become reddish on the feet and the sides of the belly. It is on this account that they often kill the pregnant females to obtain the skin of the foetus, because in that state the fur is still more silky, and blacker, than when the animal is first born.

The largest sea-bears of the Kàmtschatkan seas, weigh about twenty Russian poods, *i. e.* 800 of our pounds; in length they do not exceed eight or nine feet: this applies also to those which are found at Staten Land *, and in several

* “ We walked upon the summit of the island (near Staten Land) which was nearly level, but covered with innumerable little mounds, on each of which grew a large tuft of grass (*dactylis glomerata*). The intervals between these tufts were very muddy and dirty, which obliged us to leap from one to the other. We soon discovered that another kind of seals occupied this part of the island, and caused the mud by coming wet out of the sea. These were no other

isles of the southern hemisphere, where voyagers have noticed these same sea-bears, and have observed others much smaller.

During the nine months which these large animals stay on the coasts of Kamtschatka, *i. e.* from August to June, they have a fat membrane on the body, under the skin, about four inches thick. The fat of the males is oily, and of a very disagreeable taste, but that of the females is less abundant, and of a more supportable flavour; the flesh may be eaten; that of the young is even tolerably good, whilst the meat of the old ones has a very bad taste, although stript of the fat; the heart and the liver are the only eatable parts*.

The one described by Steller, measured but seven feet three inches from the end of the nose to the extremity of the back fins; and seven

then the sea-bears which we had already seen at Dusky Bay, but which were here infinitely more numerous, and grown to a much larger size, equalling that assigned to them by Steller. They are, however, far inferior to the sea-lions, the males being never above eight or nine feet long, and thick in proportion. Their hair is dark brown minutely sprinkled with gray, and much longer on the whole body than that of the sea-lion, but does not form a mane. The general outline of the body and the shape of the fins are exactly the same."—*Forster's Voyage*, ii. p. 516.

* "The old lions and sea-bears were killed chiefly for the sake of their blubber, or fat, to make oil of; for, except their harslets, which were tolerable, the flesh was too rank to be eaten with any degree of relish. But the young cubs were very palatable; and even the flesh of some of the old lionesses was not much amiss; but that of the old males was abominable."—*Cooke's Second Voyage*, ii. p. 195.

feet, an inch, and six lines, from the same point to the end of the tail.

If the sea-bear be compared with the land species, we find no other resemblance between them than in the skeleton of the head, and in the shape of the fore part of the body, which is thick and fleshy *. The head, in its natural state, is covered with a fatty membrane an inch thick, which gives it a much rounder appearance than that of the terrestrial bear; it is in reality two feet five inches six lines in circumference behind the ears, and is only about eight inches long; but, after having stript off the fat, the skull strongly resembles that of the land-bear. Besides, these two animals differ exceedingly in shape; the posterior part of the body in the sea-bear is very thin, and takes almost a conical form, from the loins to near the tail, which is but two inches long; insomuch that the thickness of the body, which is four feet eight inches in circumference about the shoulders, is reduced to one foot six inches and three lines near the tail.

The sea-bear has external ears like the sea-lion and sea-otter; these ears measure an inch

* “ The sea-bears (of the island of St. Elizabeth) have, in effect, more resemblance to bears than to wolves . . . their colour, and their head, are altogether like the bear’s, except that their snout is sharper: they resemble them also in their motions, and in the manner in which they perform them; but they are as if paralytic behind, for they can only drag their legs and hind fins after them; nevertheless, they run so, quick, that a man can hardly overtake them. — *G. Spilbert, Recueil des Voyages qui ont servi a l’Etablissement de la Compagnie des Indes Orientales*, tom. ii. p. 437 et 438.

and seven lines; they are pointed, conical, straight, smooth, and without hair externally; they open only by a longitudinal slit, which the animal can contract and close when it plunges under water; the eyes are large and prominent, somewhat like those of an ox; the iris is black; they are furnished with eyelids and eyelashes, and are defended, like those of the common seals, by a membrane which originates from the great angle of the eye, and which can cover it when the animal pleases.

The mouth, from the angle to the end of the muzzle, measures but three inches; it has whiskers, the bristles of which are five inches eight lines long; the upper lip projects an inch and a half beyond the lower; and the distance between the two lips, when the mouth is open, is about four inches. The tongue, which is like that of all other seals, rather cloven at the end, is four inches and a half, or five inches long.

The teeth are very pointed, and so placed in each jaw, that each point exactly corresponds with the space that separates the end of the others: there are in all thirty-six; twenty above, and sixteen below: *first*, in the upper jaw, four cutting teeth, divided into two points at their end: *secondly*, two canine teeth, one on each side, about four lines long, which are curved inwards: *thirdly*, two other canine teeth, or very sharp tusks, one on each side, about eight or nine lines long; it is with these that the animals tear and wound themselves cruelly: *fourthly*, six other

teeth, which are sharp like the rest, and which occupy the place of the grinders.

In the lower jaw, as in the upper, there are; *first*, four cutting teeth in front: *secondly*, two canine only, one on each side; they are sharp edged on the anterior face, and more than an inch long: the sea-bear uses them in its battles, as the wild boars do their tusks; but there are no other canine teeth, as in the upper jaw: *thirdly*, five pointed teeth on each side, which supply the place of grinders, the same as in the upper jaw.

A character which is common to bears and to sea-lions, and which distinguishes them from all other animals is, the form of their feet: they are provided with a web, or fin, which, in the fore-feet, unites the toes into a single mass; whilst in those behind the toes are also united by a web, in which they are somewhat like the web-footed birds. The animal uses its fore-feet in walking on land, while those behind are of no other service than to swim with and to scratch: they are dragged along on the ground like useless members, for these hind parts of the body collect and accumulate such a quantity of sand and mud under its belly, that it is obliged to make a circular motion; and this is the reason why they cannot climb the rocks.

We ought also to observe, that the little black seal which we have figured (pl. 345), has such an affinity with the sea-bear, that we cannot disguise our opinion, that it is an individual belonging to that species, or a variety only; for it

absolutely resembles the great sea-bear in the shape of the body; in the paws, which are webbed, and entirely void of hair; in the cutting teeth, which are slit at the end; in the ears, which are prominent; and lastly, in the silky quality and blackish colour of the fur. And, as it is presumed that this animal, although very small, was, however, full grown, since it had all its teeth properly formed, we may believe that there exists a second species, or race of sea-bears, smaller than the first; and that it is to this second species, that we ought to refer what voyagers have said of little sea-bears*, which they have seen in different parts of the southern hemisphere †; but which, till now, have not been known in the northern hemisphere.

* Messrs. Forster and Pages.

† In Dusky Bay, New Zealand, and New Georgia. — *Forster's Voyages*.

M. de Pages* also saw this little species at the Cape of Good Hope; and I think we may refer to it what Dampier says of the sea-calves, which were found in abundance at the island of Juan Fernandes.

“Thousands of these animals,” says he, “are on this island: they are as big as calves, the head of them like a dog. . . . Their hair is of divers colours, as black, gray, dun, spotted, looking very sleek and pleasant when they first come out of the sea; for these at Juan Fernandes have fine, thick, short fur; the like I have not taken notice of any where but in these seas. Here are always thousands, I might say millions of them, either sitting in the bays, or going and coming in the sea round the island, which is covered with them (as they lie at the top of the water playing and sunning themselves) for a mile or two from the shore. When they come out of the sea, they bleat like sheep for their young;

This little black seal, with long waved hair, is probably the same that Belon has figured, and which he remarks under the name of *phoca, vitulus marinus*, *vecchio marino*, calf, or sea-wolf*. It has also all the appearance of that which Rondeletius† calls Mediterranean seal, which according to him has a longer and thinner body, in proportion, than the seal of the ocean. It is, in reality, found both in the Mediterranean‡ and

and, though they pass through hundreds of others' young ones, before they come at their own, yet they will not suffer any of them to suck. The young ones are like puppies, and lie much ashore; but, when beaten by any of us, they, as well as the old ones, will make towards the sea, and swim very swift and nimble; though on shore they are sluggish, and will not go out of our ways unless we beat them, but snap at us. A blow on the nose soon kills them. . . . Seals are found as well in cold as hot climates; and in the cold places they love to get on lumps of ice, where they will lie and sun themselves, as here on the land. They are frequent in the northern parts of Europe and America, and in the southern parts of Africa, as about the Cape of Good Hope, and at the Straits of Magellan. . . . They are over all the American coast of the South Seas, from Terra del Fuego, up to the Equinoctial Line; but to the north of the Equinox again, in these seas, I never saw any, till as far as twenty-one north latitude; nor did I ever see any in the East Indies. In general, they seem to resort where there is plenty of fish, for that is their food; and fish, such as they feed on, as cods, groopers, &c., are most plentiful on rocky coasts." — *Dampier's Voyages*, vol. i. p. 89 and 90.

* De la Nature des Poissons, p. 16.

† Rondel. de Piscibus, lib. 16.

‡ These Mediterranean seals often appear on the coasts of Istria: they prefer rocky bottoms, and little islands, that they may lie dry and in the air. The inhabitants of the maritime countries of Dalmatia and Istria, attribute a singular taste for

in the South Seas. They assured us, that the one we saw came from India; and it is at least very probable that it came from the seas of the Levant. It was full grown, since it had all its teeth; it was a fifth less than the adult seals of our seas, and two-thirds smaller than those of the Frozen Sea; for, although it had all its teeth, it was only two feet three inches long.

Besides, this little race, or species of sea-bear, exactly resembles the large one, as well in the colours of the hair and shape of the body, as in manners and natural habits. It seems only, that, being smaller, they are also more timid than the large sort. "These animals," says M. de Pages, "merely attempted to escape to the sea-coast, without snapping at any thing but what was directly in their way: several, in flying, passed even between our legs; they soon became familiar with the men: I preserved two alive for eight days, in a tub five feet in diameter. The first day I put in sea-water to the height of six inches; but as they attempted to avoid it, I put them into sweet water; finding themselves uncomfortable also in this, I left them dry: as soon as the water was poured out, they shook themselves like dogs: they scratched, cleaned themselves with their muzzle, and rubbed against each other: they also sneezed like dogs.

grapes to this animal; and positively assert, that they leave the water, during the night, to go into the vineyards and suck the hanging bunches. — *Voyage en Dalmatie, par M. l'Abbé Fortis*; French edition, tom. ii. p. 177.

W.

“ When the sun shone, I lashed them to the fore-castle of the ship, from whence they did not attempt to escape, except when they saw the sea: when on shore, they scratched themselves, and were even pleased to be scratched by the men, near whom they walked very familiarly: they even went up to the crew and smelled them; and they delighted to climb high places, to be more exposed to the sun.

“ They were fond of each other: they rubbed and scratched mutually; and, when separated, they soon sought to meet again. It was enough to carry one away, to make the other follow. We offered them fish, sea-weed, and bread dipped in water: they took what was presented to them, but they did not swallow it, and returned it directly. The seventh day, one of them had very strong palpitations and sobbings; a greenish liquor ran out of his open mouth, and he gnawed his tub. I threw him into the sea; the next day I fastened the other in a meadow; but as he ate nothing, I drove him into the sea: at first he swam very slowly; but, after diving under water for a considerable time, he returned to the surface more active than before: he apparently came for food.”

M. de Pages adds, that the largest sea-bears that he saw at the Cape of Good Hope, were not more than four feet long, and for the most part (apparently females and young) were only two feet and a half; a prodigious difference, in size, from the species described by M. Steller.

“ The young ones have blackish hair,” con-

tinued M. de Pages, " but with age it becomes of a silver-gray at the end ; their teeth are small ; their whiskers very long ; their aspect is gentle, and their head resembles that of a dog with little ears: the ears of these sea-bears are straight, scarcely open, and are but seventeen or eighteen lines long. The neck is thick, and almost even with the head : the largest part of the animal is the breast, from whence the body diminishes to the tail, which is only about two inches in length.

" The fore paws are formed by a cartilaginous membrane, which is shaped almost like a fin : this membrane is stronger before than behind ; these paws have five toes, which do not project beyond the membrane ; the interior toe is the most evident, as well as its phalanges ; the two following are less so, and the two exterior are hardly visible ; each toe is armed with a very small nail, which is scarcely to be seen, being hid by the hair.

" The hind paws have also five toes ; the three middle ones of which have their phalanges and their nails very distinct ; the others are less characterised in this respect ; they have a very small thin nail : all the toes are joined by a membrane, as in the goose*."

* Note on the sea-bears of the Cape of Good Hope, communicated by M. de Pages.

THE SEA-LION*.

THE sea-lion is the largest of the seal kind with external ears: it is, beyond comparison, bigger, and more powerful, than the sea-bear; nevertheless, it was but little known till lately, and we have previously observed that the true

* CHARACTER SPECIFICUS.

PHOCA JUBATA. P. cervice (maris) jubata. — *Linn. Syst. Nat. Gmel.* i. p. 63. — *Schreb.* iii. p. 300, pl. 83, B.

Phoca (jubata) capite subauriculato, collo (maris) jubato. — *Erxleb. Mamm.* p. 582.

Phoca capite postice jubato. — *Molina, Hist. Nat. Chili*, l. 4. p. 250.

LEO MARINUS. — *Steller, Nov. Act. Petrop.* ii. p. 360.

LES LIONS MARIN. — *Pernetty, Voy.* ii. p. 47, pl. 10.

LE LION MARIN. — *Buff. Hist. Nat. par Sonn.* xxxiv. p. 125, pl. 4.

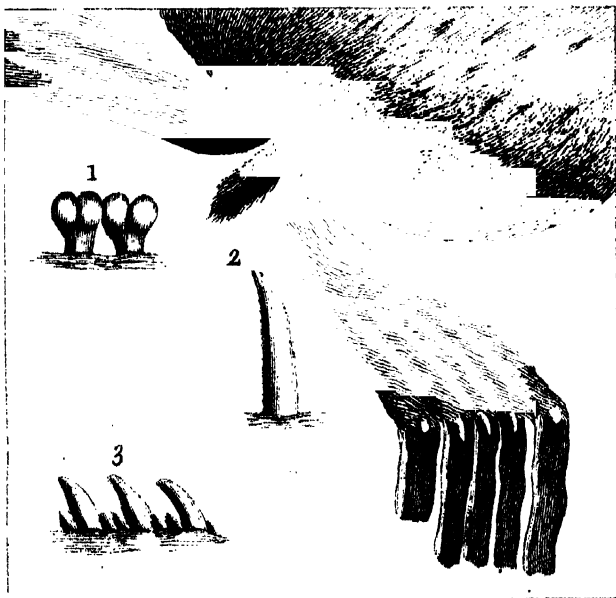
SEA-LION. — *Cook's Second Voyage*, ii. p. 203 and 204. — *Forster's Voyage*, ii. p. 512, and following.

LEONINE SEAL. — *Penn. Hist. Quadr.* ii. p. 288, pl. 101. — *Shaw's Gen. Zool.* i. p. 270, pl. 74.

HABITAT

in parte septentrionali maris pacifici, littore occidentali Americæ, orientali insularum Falkland, Patagoniæ, Kamtschatkæ, et potissimum circa insulas, quæ inter Kamtschatkam et Americam interjacent, et Kuriles.

* W.



SEA LION.

sea-lion, which is our present subject, is not the animal to which this name has been improperly applied by the compiler of Anson's Voyage; the figure represents the *wrinkle-nosed seal* which we have described, and which has neither external ears nor mane; it differs also from the sea-lion in many other characters. This mistake (or rather this false application of the name) could not be rectified while we knew but little, distinctly, of either of these animals; but enlightened voyagers* have lately put us in a way to decide on their differences, which are more than sufficient to establish two species, and even two distinct and separate genera. We here give the figure of the true sea-lion, designed after nature by the learned naturalist and voyager Mr. Forster, to whom we owe also several good observations on some other animals.

Forster saw herds of these sea-lions on the coasts of Terra Magellanica, and in some parts of the southern hemisphere†; other voyagers have met with these same sea-lions in the North Seas, on the Kurile Islands, and at Kamtschatka. Steller‡, for instance, lived among them several months on Bering's Island. Thus the species is spread over both hemispheres, and perhaps under all latitudes; the same as the sea-bear, the sea-otter, and the majority of seals.

* Steller and the Forsters.

† The sea-lions are those animals described by the navigators to the southern coasts, as having a mane upon the neck and head. See the article Wrinkle-nosed Seal.

‡ Novi Comm. Acad. Petrop. 4to ann. 1751.

The sea-lions keep together, and go in great families; less numerous, however, than those of the sea-bears, with which we sometimes see them on the same shore; each family is commonly composed of a full grown male, of ten or twelve females*, and of fifteen or twenty young of both sexes; there are males which appear to have even greater numbers, but there are others which have many less: all swim together in the sea, and also live united when they rest themselves on shore: the appearance or voice of a man makes them fly, and throw themselves into the water; for, although these animals are much larger and stronger than the sea-bears, they are nevertheless more timid. When a man attacks them with a common stick, they rarely defend themselves, but run groaning away. They never attack or offend any one, and we may venture into the midst of them without having any thing to fear†,

* The Forsters say, ten or twelve females, and M. Steller gives them only two, three, or four; but as the opinion of the Messrs. Forsters appears to be best established, respecting the number of little ones which follow each family, we may believe, in effect, that the males have the number of females which they have specified. Besides, it seems, that this number varies in certain circumstances, for it is said, in Cook's Voyage, that they saw a male surrounded by twenty or thirty females, which he was very attentive to keep near him; but that there were other males that had but one or two. — *Cook's Second Voyage*, ii. p. 203.

† “ It was not at all dangerous to go among them, for they either fled or lay still. The only danger was in going between them and the sea; for, if they took fright at any thing, they would come down in such numbers, that, if you could not get out of their way, you would be run over. Some-

They were never dangerous but when grievously wounded or reduced to despair*, when they become furious from necessity; they then faced the enemy, and fought with a courage proportioned to their injury. The hunters try rather to surprise them on shore than in the sea; because they often upset the boats when they feel themselves wounded. As these animals are very strong and massive, it is a kind of triumph, among the Kamtschadales, to kill a sea-lion. Man, in a state of nature, has a higher esteem for personal courage than we have; these Savages, stimulated by this idea of glory, expose themselves to the greatest danger; they wander on the waves for several days together in search of sea-lions, without any guide but the sun or moon; they generally knock them down with poles, and sometimes shoot them with poisoned arrows, which kill them in less than twenty-four hours; or, occasionally, they take them alive, with cords made of a sort of bindweed, with which they hamper their feet†. Although these animals are of a savage

times, when we came suddenly upon them, or waked them out of their sleep (for they are a sluggish sleepy animal), they would raise up their heads, snort and snarl, and look as fierce as if they meant to devour us; but as we advanced upon them they always ran away. . . . They were, in general, so tame, or rather stupid, as to suffer us to come near enough to knock them down with sticks; but the large ones we shot, not thinking it safe to approach them." — *Cook's Second Voyage*, ii. p. 194, 203.

* Steller, Nov. Comm. Petrop. t. ii. ann. 1751.

† The most active only of the people are addicted to this chase; they approach them by stealth, and plunge a knife

and brutish nature, it nevertheless appears, that, in time, they become familiar with mankind. M. Steller says that, when they are treated kindly, they may be tamed; he adds that they became so accustomed to see him, that they no longer ran away from him, as at first; that they looked at him peaceably, and with a kind of attention; that, in short, they had so completely lost all fear, that they acted without restraint, and even copulated before him. Mr. Forster says, also, that he has seen some that were so habituated to see the men, that they followed the shallop into the sea, and that they seemed as if they were examining how it was made.

However, although the sea-lions are of a gentler nature than the sea-bears, the males have often long and bloody combats together; they

into their breast below the arm-pit: this knife is attached to a long thong, made of sea-calf skin, and fastened to a post. Every one quickly retires, and, at a distance, throws his darts or knives, in order to wound the animal in several parts of the body, and, when its strength is exhausted, they finish by striking it with clubs.

“When they find them sleeping on the sea, they shoot them with poisoned arrows, and then quickly retire: the animal, feeling itself wounded, and being unable to support the pain occasioned by the sea-water entering the wound, swims to shore, where they kill it with darts or arrows; but if the place is not safe, they wait till it dies of its first wound, which happens in about twenty-four hours. This chase is so honourable, that he who has killed the most, passes for a hero; and this it is, that causes many to devote themselves to it, much less on account of the flesh, which is esteemed very delicate, than for the acquisition of honour.” — *Kracheninnikow, Hist. du Kamtsch.* tom. i. p. 287.

have been seen with their bodies cut, and covered with great cicatrices. They fight to defend their females * against a rival who comes to seize and carry them off; after the combat is over, the conqueror becomes the chief and master of the entire family of the vanquished: they also fight to preserve the place which each male constantly occupies on a great stone that he chooses for his residence; and when another male comes to drive him away, the fight begins, and finishes only in the flight or death of the weakest †.

The females never fight with each other, nor with the males; they seem to be in a state of absolute dependence on the chief of the family; they are generally followed by their little ones of both sexes; but, when two males, that is to say two chiefs of different families, are engaged, all the females, with their suite, come to witness the combat; and if the chief of some other herd also arrives and takes part for or against one of the two combatants, his example is presently followed by several other chiefs; then the battle becomes general, and ends only in a great effusion of blood,

* "I have seen them fight for two or three days together for a female which another male wanted to carry off."—*Steller, Nov. Comm. Petrop.* tom. ii. ann. 1751.

† "The sea-lions live together in numerous herds. The oldest and fattest males lie apart, each having chosen a large stone, which none of the rest dares approach, without engaging in a furious battle. We have often seen them seize each other with a degree of rage which is not to be described; and many of them had deep gashes on their backs, which they had received in the wars."—*Forster's Voyage*, vol. ii. p. 514.

and often in the death of many of these males, whose families are reunited for the benefit of the conquerors. It is remarkable that the superannuated males never interfere in these quarrels; they apparently feel their weakness, for they are careful to keep at a distance, and to remain quiet on their stones, without, however, permitting other males, or even females, to approach them. The majority of the females, during the fight, forget their young, and endeavour to fly to a distance from the scene of action. This supposes a very different disposition from that of the sea-bear, the females of which carry off their little ones, when they are unable to defend them; however, there are sometimes sea-lionesses which carry their young in their mouths *, and others which have feeling enough not to abandon them, and which will even suffer themselves to be knocked down, in attempting to defend them †. But we must consider this as an exception, for Steller says positively, that these females have but very little love for their young; and that, when they carry them off, they do not appear to be affected: he adds, that he has frequently taken the young from before the father and mother, without running the least risk, and without these unnatural or insensi-

* "They commonly waited the approach of our people; but as soon as some of the herd were killed, the rest took flight with great precipitation, some females carrying off a cub in their mouths, whilst many were so terrified as to leave them behind."—*Forster's Voyage*, vol. ii. p. 314.

† *Memoir on Seals*, communicated to M. de Buffon by Mr. Forster.

the animals making the slightest attempt to help or revenge them.

Besides, says he, it is only among themselves that the males are ferocious and cruel, they rarely abuse their young, or their females; they are much attached to them, and are pleased with their caresses, which they return with kindness. But what appears singular, unless they have a precedent in our seraglios is, that, in the season of love, they are less complaisant, and fiercer: the female is obliged to make the first advances *: the sultan male seems to be not only indifferent and disdainful, but he also shows his ill humour; and it is not till after she has several times repeated her caresses, that his sensibility is touched, and he yields to her solicitations: both then throw themselves into the sea, where they make different evolutions, and, after swimming gently on together for some time, the female first returns

* "The act of love is preceded by several strange caresses: it is the weaker sex that makes the advances. . . . the female squats down at the feet of the male, crawling round him a hundred times, and now and then approaching his snout, as if to kiss him. During this ceremony the male seems to be cross; he growls, and shows his teeth to the female, as if he would bite her; at this signal, the docile female retires, and afterwards recommences her caresses, and licks the feet of the male. After a long preamble of this kind, they both fling themselves into the sea, and there take several turns, pursuing each other; finally, the female goes on shore first, where she turns on her back; the male, who follows close behind, covers her in that situation, and the union lasts eight or ten minutes."—*Extract of a Memoir communicated by Mr. Forster.*

to shore, and lies down on her back, to wait for and receive her master. During the union, which lasts eight or ten minutes, the male supports himself on his fore-feet, and, as he is one third larger than the female, he covers her entirely.

These animals, as well as the sea-bears, always copulate on the desert islands, and afterwards indulge themselves in amorous pleasures. Mr. Forster, who observed them on the coasts of Terra Magellanica, says, that he has witnessed their amours and copulation in the months of December and January, that is to say, in the summer season of these climates. M. Steller, who likewise observed them on the coasts of Kamtschatka and in the neighbouring islands, asserts that they always couple in August and September, and that the females bring forth in July *. It appears then, that, in these opposite climates, it is always in summer that the sea-lions seek each other, and that the term of gestation is about eleven months; however, the same Steller says positively, that the females go but nine months, as if he could not reckon that, from September and August, to July, there is not nine, but ten and eleven months. These two voyagers, whom we have quoted, do not agree about the number of young which the female produces at a birth: according to Steller, she has but one, and Forster gives her two †: but it may be

* M. Kracheninnikow says the same thing in his *History of Kamtschatka*.

† M. Kracheninnikow, also, says even to three or four, which is not probable.

that they generally produce one, and sometimes two: it is probable, also, that they are not so prolific at Kamtschatka as in Terra Magellanica; and, lastly, it may be, that, the young of the preceding year attending its mother with that of the year following, Mr. Forster did not distinguish them, seeing the female followed by two little ones. The same voyagers relate that these animals, and especially the males, eat nothing during their amours*, insomuch that afterwards they are always very thin and exhausted; those which are opened in this season have nothing in their stomachs but little stones, whilst at every other time they are very fat, and their stomach is stuffed with little fish and crustacea, which they eat in great abundance.

The voice of the sea-lions differs according to their age and sex; and it is easy, even at a distance, to distinguish the cry of the adult males from that of the young and females: the males

* "As soon as the seals are in heat," says Mr. Forster, "that is to say, during some weeks, they take no food, insomuch that they return, after this season, to the sea, very thin and exhausted. We found a considerable quantity of round stones in their stomachs, of the size of a fist (some had to the number of twenty), without being able to tell what instinctive faculty could induce these animals to swallow them." We merely remark that Beauchene Gouin, a very able and credible French navigator, reports the same fact, and adds, there was some appearance that these stones were already begun to be digested. May not the *gastric juice* of these animals be so acrid, as to require stones for it to work upon while they fast? (Extract of a Memoir by Mr. Forster, previously quoted; also, Forster's Voyage, vol. ii. p. 514; and Histoire des Navigation aux Terres Australes, tom. ii.)

bellow like bulls * ; and, when they are enraged, they show their passion by a great roaring ; the females also make a kind of bellowing, but weaker than the males, and very like the lowing of a young calf. The voice, of the young ones greatly resembles that of a lamb some months old ; insomuch that, at a distance, they thought they heard droves of oxen and flocks of sheep scattered along the coasts, although in reality it was only herds of sea-lions, whose bellowings in various tones were heard by the voyagers at a sufficient distance from the coast to announce their approach to land †, which the fogs, in these latitudes, often veiled from their eyes.

The sea-lions move in the same manner as the sea-bears, *i. e.* they drag their hind-feet after them, but in a still heavier manner, and with a worse grace. There are some so stupid (and these are probably the old ones), that they never quit the stone they have chosen for their seat, and on which they pass the whole day sleeping and snoring ; the young ones have also less vivacity than the young sea-bears, they are often found sleeping on the shore, but their sleep is so light, that they awake with the least noise, and run away. When the little ones are fatigued with

* " The noise which all the animals of this kind make together was various, and sometimes stunned our ears. The old males snort and roar like mad bulls or lions ; the females bleat exactly like calves, and the cubs like lambs."—*Forster's Voyage*, vol. ii. p. 514.

† Kracheninnikow, *Histoire du Kamtschatka* ; Lyon, 1767, tom. i. p. 285.

swimming, they get upon the back of the mother ; but the parent soon throws them off again, on purpose to make them exert themselves and to strengthen them in the exercise of swimming. In general, all the sea-lions, adults as well as young, swim very light and with great velocity ; they can also remain for a long time under water without respiring ; they exhale a strong smell, which spreads to a distance : their flesh is almost black, and of a very bad taste, especially the male's ; however, M. Steller says that the feet, or hind fins, are very eatable ; but this perhaps may apply only to navigators, who, for want of other aliment, are more easily satisfied. They say that the flesh of the young ones is whitish, and may be eaten, although it is rather flat, and of a disagreeable taste ; their fat is very abundant, like that of the sea-bears, and though less oily than that of other seals, is not more eatable. This great quantity of fat, and their thick fur, defends them, in the icy regions, against the cold ; but it does not seem prejudicial to them in hot climates, since no falling off of the hair is perceived, nor diminution of their corpulence, in any latitude in which they have been found *. These amphibious creatures, therefore, differ in this from terrestrial animals,

* The sea-lion of the coasts of Brasil, does not differ from the sea-wolf (which is also common, and which probably is the sea-bear), except in the long bristles that hang on the neck ; we saw them as large as bulls ; some we killed ; their body is nothing but a mass of fat, from whence they obtain oil, &c.

which change their hair, when they are transported to different climates.

The sea-lion differs also from all other sea animals in a character from which its name originates, and which, in effect, gives it some resemblance, externally, to the terrestrial lion; this is a mane of thick waved hairs, two or three inches long, and of a deep yellow colour, spreading on the forehead, checks, neck, and breast: when the animal is enraged, this mane stands on end, and gives it a threatening aspect *. The female, whose body is shorter and thinner than the male's, has not the least vestige of this mane; all its hair is short, smooth, shining, and of a tolerably clear yellowish colour: that of the male, with the exception of the mane, is also shining, polished, and short; only it is of a brownish yellow, and deeper than in the female. It has no felt, or down, beneath the long hairs, as in the sea-bear: besides, their colour varies according to their age; the old males are yellow like the females, and sometimes they are white on the neck and head: the young are generally of the same deep yellow colour as the adult males; but there are some of a blackish brown, and others of a pale yellow, like the old ones and the females.

* We read, in Cavendish's Voyage, that there are some islands in this port (Desire) where they saw a great number of sea-dogs, which were extremely powerful and tall, and of an ugly shape: the fore part of the body may not perhaps be improperly compared to that of a lion; their neck, and all that appears beneath, is covered with long, harsh hair.—*Recueil des Voyages*, 1703, t. ii. p. 14 et 15.

This great animal weighs about 1,500 or 1,600 pounds, and measures from ten to twelve feet, when full grown*. The females, which are much thinner and smaller, are commonly but seven or eight feet long †. The body of both, of which the diameter is nearly one third its length, is almost throughout of an equal thickness, and looks like a great cylinder, rather made for rolling than walking on the earth: moreover, this extremely round body could not sit, if it were not for the excessive fat with which it is entirely covered, and which readily accommodates itself to the inequalities in the earth and stones on which the animal lies down to rest ‡.

* Voyagers are agreed about the weight of the sea-lions, but they are not equally so about their size: some give them from twelve to fourteen feet in length, and Pernetty makes them still larger. M. Steller says that their body hardly equals the sea-bear's in length, but that it is much thicker; and Mr. Forster, who seems to have closely examined these animals, says, that the old sea-lions are, generally, ten or twelve feet long, which is what we have here adopted, inasmuch as it appears to be the most conformable to the weight of the animal. — *Forster's Voyage*, vol. ii. p. 513.

† “In coming from Port Desire,” says Lemaire, “we touched at King's Island, where we caught some young sea-lions, which were well tasted: these lions are as large as a small horse, having a head like that of a lion, with a long rough mane, but the lionesses have none, and they are not half so large as the males; we could not kill them unless we shot them under the throat, or in the head; we gave them a hundred blows with a handspike, till the blood ran out of their nose and mouth, yet they did not attempt to run away and escape.” — *Recueil des Voyages*, t. ii. p. 14.

‡ From some slight circumstances, we can scarcely doubt

The head appears too small in proportion to so large a body: the muzzle is somewhat like that of a great bull-dog, being a little raised, and, as it were, truncated at the end; the upper lip

that the following passage from Coreal's Voyage relates to our sea-lions:

“ At noon I took the two shallops, and entered the harbour of the island of Sea-Calves with forty men, each armed with a club and a stick; being landed, we chased herds of sea-calves; surrounded them, and, in half an hour, killed four hundred. . . . The old males are generally as large as a calf; and resemble the lion in the hair of the neck and head, in the muzzle and the mane: the female also, before, is like a lion, except that she is quite hairy, and that the hair is smooth like a horse, instead as in the male, which is smooth only behind. They are deformed; the hind part regularly lessens, even to the two fins, or very short feet, which are at the end of the body; they have two others at the breast, so that they can walk on land, and even climb rocks, and pretty high mountains; they love to lie in the sun, and sleep on the shore: there are some which exceed eighteen feet in length, and are big in proportion. There are thousands only fourteen feet long, but the most common are not more than five, and are very fat: their mouth is always open, and two men are troubled to kill a large one with a spear, which is the best weapon that can be used on this occasion. . . . The flesh is white, and as fine as that of a lamb, and very good to eat fresh; but much better when it has been a short time in salt. All the calves that we dressed were very young, and still sucking their mothers. As soon as they come on shore, they bleat, and the little ones follow, bleating like lambs; one old female suckles four or five, and drives the other little ones away that approach her; from whence I judge that they have four young at a birth. The young that we killed and ate, were as large as a middling sized dog; we stript the fat from the largest, and made oil from it for our lamps, and for the ship's use: but, for frying, we preserved the oil obtained from the young ones:

projects beyond the lower one, and both are furnished with five rows of harsh bristles, in the shape of whiskers, which are long, black, and extending along the opening of the mouth; these bristles are hollow, and may serve for toothpicks*; they become white in old age. The ears are conical, and only six or seven lines long; their cartilage is firm and stiff, nevertheless, they are pliant towards the end; they shine within, and the exterior surface is covered with hair: the eyes are large and prominent, the carunculæ of the great angles are very visible, and of a lively red colour, insomuch that the eyes of this animal appear inflamed and heated; the iris is green, and the rest of the eye is white, variegated with little sanguine threads. There is a membrane (*membrana nictitans*) at the interior angle, with which the animal can cover the eye at pleasure: the eyebrows are composed of very strong black hairs. The tongue is covered with little tendinous fibres, and is rather slit at the end: the palate is channelled and grooved transversely by very visible ridges. The teeth are thirty-six in number, as in the sea-bear, and are placed in the same manner. The upper cutting teeth (fig. 2, pl. 347), are terminated by two points, instead of one, as in the lower; it has four, both above and below: the canine teeth (fig. 2) are much longer than the cutting teeth, and of a conical shape, rather curved at the end, and channelled on the inner

my crew found it as good as olive oil."—*Francis Coreal's Voyage*, Paris, 1522, tom. ii. p. 180.

* Memoir on Seals, by Mr. Forster.

side. There are (as in the sea-bear) double canine teeth in the upper jaw, which are placed near each other, between the cutting teeth and the grinders, and one canine only on each side of the lower jaw; but all these canine teeth, as well as the cutting teeth and grinders, are three times as long as those of the sea-bear; their molar teeth (fig. 3) are six in number on each side in the upper jaw, and five only on each side in the lower jaw: they are nearly of the same shape as the canine, only they are shorter: we remark a prominence, or horny tuberosity, on these teeth, which seems to be a constituent part of them.

The sea-lion has fins on each side the breast, instead of fore-feet; they are glossy, and of a blackish colour, without any appearance of toes, with a slight trace of a nail in the middle, hardly to be distinguished: however, these fins enclose five toes with their proper bones and articulations: these little nails are like round tubercles, and of a horny substance; they are situated at about one third from the end of the fin: the fin is of an elongated triangular shape, truncated at the end, and absolutely bare, and indented, as it were, on the inside.

The hind fins, like those before, are covered with a blackish skin, glossy and bare, but it is divided at the end, into five strong, long, and flat toes, which are terminated by a thin compressed membrane that extends beyond the ends of the toes; the little nails above these toes are of no use to the animal, except to scratch its body.

The conformation of the feet in the seals is very different; all have the fore paws pretty much alike, with distinct and well marked toes, which are united only by a membrane: their feet, and toes also, are hairy, like the rest of their bodies; on the contrary, in the sea-lion, as in the sea-bear, these four extremities are fins rather than paws. We likewise conceive that one or the other of these species of sea-lion or sea-bear ought to be referred to what Frezier says of the seals which are found on the eastern coasts of America. "They differ," says this navigator, "from the sea-wolves of the north, inasmuch as those have paws, while these have elongated fins near the shoulders, somewhat like wings, and two other small ones which include the rump. After all, Nature has preserved some likeness between the great fins and the paws, for we observe that they are terminated by nails; perhaps they assist these animals in walking on land, where they like to be, and where they carry their little ones, to feed them with fish. . . . they bleat like calves, from whence they are called sea-calves, but their head resembles a dog's rather than that of any other animal, and it is on this account that the Dutch call them sea-dogs. They are covered with very short thick hair, and their flesh is very oily and bad flavoured. . . . nevertheless the Indians of Chiloe dry it for food. The crews of ships obtain oils from them for their use. They are very easily taken; they may be got at without any trouble on land and by sea, and a single blow on the nose kills them. They

are of different sizes; in the south, they equal a mastiff in size, and in Peru some are found more than twelve feet long. . . . The tail is only about three inches long; this short tail is of a conical shape, and covered with hair like the body: when the animal is stretched out, the tail is hid between the hind fins, which, in this posture, are very near each other*."

If we compare all that we have said about the sea-bear with the subject of our present consideration, we shall find a striking similarity between the two animals, as well in their natural habits, as in many of their exterior characters; however, as there are essential distinctions, and as the two species have sometimes been confounded together, it will be proper in this place to recapitulate their principal differences.

1. The sea-lion has, like the terrestrial lion, a tawny mane, and all the rest of its hair is short, smooth, glossy, and flat on the skin; on the contrary, the sea-bear has no mane, and the hair on the neck and body is long, and stands on end; there is, moreover, at the root of the long hair, a second shorter kind; it is a species of fur, or woolly felt, which is wanting in the sea-lion.

2. The sea-lion is of a yellowish-tawny colour, tending to a brown, somewhat like that of the terrestrial lion: whilst the sea-bear is of a deep brown, almost black, sometimes spotted with little white points.

3. The sea-lions are generally ten or twelve feet

* Voyage a la Mer du Sud; Paris, 1732, 4to. p. 74, 75.

long: the largest sea-bears never exceed eight or nine feet.

4. The sea-lions are indolent and very stupid, and they show but very little attachment towards their progeny; on the contrary, the sea-bears are very lively, and testify their great love for their little ones by the care they take of them.

5. Lastly, although the sea-lions and sea-bears are often on the same shore, and in the same waters, yet they always live in separate herds, and at a distance from each other; and if they are sometimes near enough to mix, it is never to settle together, and each soon rejoins its family.

THE WALRUS*, MORSE, OR SEA-COW.

THE denomination of *sea-cow*, under which the walrus is most generally known, has been

* TRICHECUS.

CHARACTER GENERICUS.

Dentes primores (adulto) nulli utrinque.

Laniarum superiores solitarii.

Molares ex osse rugoso utrinque.

Labia geminata.

Pedes posteriores compedes coadunati in pinnam.

CHARACTER SPECIFICUS.

TRICHECUS ROSMARUS. T. dentibus laniariis superioribus exsertis remotis. — *Linn. Syst. Nat. Gmel.* i. p. 59. — *Schreb.* ii. p. 262, pl. 79.

Trichecus (rosmarus) dentibus laniariis superioribus exsertis longioribus. — *Erxleb. Mamm.* p. 593.

Rosmarus quod nostrates walrus, Angli a Russis mutuato nomine morse vulgo nominant. — *De Laet, Amer.* p. 38, cum fig. bona.

ROSMARUS. — *Gesn. Quadr.* p. 211. — *Jonst. Pisc.* fig. mala: — *Mus. Worm.* p. 289, cum fig. *Laet.* — *Olear. Mus.* p. 35, pl. 23, fig. 3, *Laet.*

ODOBENUS. — *Briss. Quadr.* p. 48.

EQUUS MARINUS, siue HIPPOPOTAMUS falso dictus. — *Ray's Quadr.* p. 191.



WALRUS.

ill applied *; for the animal it denotes has no resemblance to a cow. The name *sea-elephant*, which others have given it, is better imagined,

LE WALLROSS, OU CHEVAL MARIN. — *Egede, Groenl.* p. 61. cum fig. mala.

LE MORSE, OU LA VACHE MARINE. — *Buff. Hist. Nat. par Sonn.* xxxiv. p. 158.

ARCTIC WALRUS. — *Penn. Quadr.* p. 266, pl. 97. — *Cook's last Voyage*, vol. ii. p. 456, pl. 52. — *Shaw's Gen. Zool.* i. p. 234, pl. 68.

HABITAT

ad Spitzbergam copiosus, ad Groenlandiam rarius; circa Novam Zemblam, fretum Hudsonis, inque oceano glaciali usque ad promontorium Tschuktschorum. Gregarius ad 100.

W.

The arctic walrus, with two great tusks in the upper jaw, pointed downwards; four grinders on both sides, above and below; no cutting teeth; five palmated toes on each foot; a round head; small mouth; very thick lips, covered above and below with pellucid bristles, as thick as a straw; small fiery eyes; two small orifices instead of ears; short neck; body thick in the middle, tapering towards the tail; skin thick, wrinkled, with short brownish hairs thinly dispersed; legs short; five toes on each foot, all connected by webs, and small nails on each; the hind-feet very broad; each leg loosely articulated; the hind-legs generally extend on a line with the body; tail very short; penis long; the length, from nose to tail, sometimes eighteen feet, and ten or twelve round in the thickest part. The tusks have been sometimes found of the weight of twenty pounds each. — *Penn. Synops. Quadr.* p. 336.

Morss, the Russian name of this animal.

* The name *sea-cow*, as well as *sea-calf*, has perhaps been derived from this circumstance, that the walrus and seal sometimes cry like the lowing of a cow or calf: "Ipsis," says Pliny, speaking of the seals, "in somno mugitus unde nomen vituli."—*Lib. ix. cap. 13.*

because it is founded on a conspicuous character: the walrus, like the elephant, has two large ivory tusks, which proceed from the upper jaw; and its head, if it had a trunk, would have a great resemblance to that of the elephant. The walrus not only wants this instrument, which serves the elephant for an arm and hand, but it has not the use of its arms and legs, which, as in the seals, are inclosed within the skin, the hands and feet being alone free. The body is long, swelled before, narrow behind, and every where covered with short hair. The fingers of the hands and feet are enveloped in a membrane, and terminated by sharp short claws. Thick hairs, in the form of whiskers, surround the mouth. The tongue is furrowed. The walrus has no external ears; so that, if we except the two large tusks which change the form of the head, and the want of cutting teeth both above and below, it resembles the seal in every other article: it is only much larger and stronger. The largest seals exceed not seven or eight feet. The walrus is generally twelve; and some of them are sixteen feet long, and eight or nine in circumference. Both animals inhabit the same seas, and are almost always found together. They have many common habits: they live equally in water or on land: they both climb upon boards of ice: they suckle and manage their young in the same manner: they live on the same food, and equally associate in large troops. But the species of the walrus is not so much diversified as that of the seal. Neither does it stray to such distances, but is more

attached to its proper climate; for it is seldom seen any where but in the northern seas. Hence the ancients were acquainted with the seal, but had no knowledge of the walrus.

This animal is mentioned by most voyagers who have frequented the northern seas of Asia*,

* “We find the tusks of the walrus in the environs of Nova Zembla, and in all the islands, as far as the Oby. They are said to be frequent about Jeniski, and they were seen formerly as far as Pjasida. We again meet with them at Schalagin-skoi, and among the Schüktschii, where they are very large. . . . It is probable that these animals are numerous from this place to the river Anadir; for all the tusks sold at Jakutzk are brought from Anadirskoi. The tusks of the walrus are likewise found in Hudson’s Straits, where they are a Russian ell in length, and as thick as a man’s arm. Their ivory is equally good with that of the elephant’s tusks.” —*Voyage du Nord*, tom. vi. p. 7. “At Jakutzk, I saw some teeth of the walrus which were a Russian ell and a quarter, and others an ell and a half in length. They are commonly broader than thick, and are about four inches wide at the base. . . . I never heard that in the neighbourhood of Anadirskoi, the walrus was hunted or fished to procure its teeth. On the contrary, I was assured, that the inhabitants found these teeth on the low shores, detached from the animal; and, consequently, that there was no occasion for killing the creatures. . . . I have frequently been asked, whether the walrus of Anadirskoi was a different species from that found in the west passage of the Frozen Sea, because the teeth brought from the east coast are much larger than those which come from the west. . . . It appears that the walrus of Greenland, and that on the west of the Frozen Sea, have no communication with those found on the east of Kolima, about the point of Schalagin-skoi, and still farther, near Anadirskoi. Neither do those of Hudson’s Bay seem to join those of Tschuktschi. . . . It is universally agreed, however, that the walrus of Anadirskoi differs neither in size nor figure from that of

Europe and America*. But as Zorgdrager appears to speak of it with greater intelligence than any other author, I shall here give a translation of what he has said on this subject, which was communicated to me by the marquis de Montmirail †.

“ In Horisont and Klock bays, the walrus and seals weré formerly very numerous; but few of them now remain. During the heat of summer, both of them resort to the neighbouring plains, and are sometimes seen in troops of one or two hundred, particularly the walrus, who can continue there for several days running, till hunger forces him back to the sea. These animals have a great resemblance to the seal; but they are stronger and larger. Like the seal, they have five toes; but their claws are shorter, and their head thicker, rounder, and

Greenland,” &c.—*Voyage de Gmelin en Sibirie*, tom. iii. p. 148. *Note*, M. Gmelin has not resolved this question, though I think it may be answered in a satisfactory manner. He remarks, that these animals are hunted neither at Anadirskoi, nor on the eastern part of the Frozen Sea; and, consequently, no teeth are brought thither but those of the creatures who die a natural death. Of course, it is not surprising, that teeth, which have acquired their full growth, should be larger than those of the Greenland walrus, which is often killed when young.

* “On the coasts of North America, we saw sea-cows, called also *beasts with the large teeth*; because they have large tusks, as long as the half of a man’s arm. No ivory can be finer; and they are found on Sable Island.”—*Descript. de l’Amerique Septent. par Denis*, tom. ii. p. 257.

† *Descript. de la Prise de la Baleine, et de la Pêche du Greenland, &c., par Cornille Zorgdrager.*

stronger. The skin of the walrus, especially about the neck, is an inch thick, wrinkled, and covered with very short hair of various colours. His upper jaw is armed with two tusks of half an ell, or an ell in length, which are hollow at the root, and grow larger as the animal advances in years. The walrus is sometimes observed to have but one tusk, having lost the other by fighting, or by age. This ivory is generally clearer than that of the elephant; because it is harder and more compact. The mouth of the walrus resembles that of an ox, and is garnished above and below with hollow pointed hairs, about the thickness of a straw. Above the mouth are two nostrils, through which these animals blow the water, like the whale, without, however, making much noise. Their eyes are sparkling, red, and inflamed during the heat of summer; and, as they cannot then endure the impression made by the salt water on their eyes, they continue more willingly on the land in summer than in any other season. . . . They are very numerous about Spitzbergen. . . . They are killed on land with lances. . . . They are hunted on account of the profit derived from their teeth and grease. Their oil is nearly as much esteemed as that of the whale. Their teeth are of more value than the whole oil they yield. The internal part of the teeth, especially when large, the substance of which is harder and more compact than that of the smaller ones, is more precious than ivory. When a pound of the smaller kind is sold for a florin, a pound of the large brings three, four,

and often five florins. A middle sized tooth weighs three pounds. . . . and an ordinary walrus furnishes half a ton of oil. Hence the whole animal brings thirty-six florins, eighteen for the two teeth, and as much for the oil. . . . Formerly, vast troops of these animals were found on land. But our vessels, which go annually to the whale fishery, have so terrified them, that they have retired to the most sequestered places; and those which remain, never venture upon land troops, but continue in the water, or dispersed among the masses of ice*. When a walrus is met with upon the ice, or in the water, a strong harpoon is darted at him, which not unfrequently slips upon the thick hard skin. But, when pierced, the animal is dragged with a cable toward the helm of the boat, is slain with a strong spear made for the purpose, and afterwards brought to the nearest shore, or to a flat piece of ice. He is generally heavier than an ox. The

* The number of these animals must be greatly reduced, or rather, most of them have retired to unknown coasts; for we find, in the Collection of Voyages to the North, that, in the year 1704, near Cherry Island, in the latitude of sixty-five degrees forty-five minutes, the crew of an English vessel fell in with a prodigious number of these creatures, all lying near each other; that out of more than a thousand, of which this troop consisted, the sailors killed only fifteen; but that they found as many teeth as filled a ton that, on the 13th of July, they killed a hundred more, of which they carried off only the teeth that, in 1706, another English crew killed seven or eight hundred in six hours; in 1708, more than nine hundred in seven hours; in 1710, eight hundred in a few days; and that a single man slew forty with a spear.

fishers begin with taking off his skin, which, being of no value, is thrown away *. With a hatchet, they separate the two teeth from the head; or, to prevent the teeth from damage, they cut off the head, and boil it in a cauldron. The blubber is afterwards cut into long slices, and carried to the ship. . . . It is equally difficult to follow the walrus by rowing as the whale, and the harpoon is often darted in vain; because the whale is more easily pierced, and the harpoon does not slip so readily. . . . The walrus is often struck three times, with a strong sharp spear, before his hard thick skin is pierced. It is necessary, therefore, to strike him in a place where the skin is well stretched. For this reason, the fishers aim at the eyes of the animal, which obliges it to turn its head, and stretch the skin of the throat or breast. Then the blow is given in this place, and the spear is quickly retracted, to prevent the creature from seizing it with his teeth, and wounding his assailant, either with his teeth, or even with the spear, which sometimes happens. The attack upon a small piece of ice never lasts long; because the walrus, whether wounded or not, throws himself quickly into the water; and, therefore, attacking him upon land, is always preferred. . . . These animals are found in unfrequented places only, as in the island of Mofsen,

* Zorgdrager seems to have been ignorant that a very good leather is made of this skin. I have seen strong coach braces made of it. Anderson, after Oter, says, that girths, and ropes for boats, are also made of this skin. — *Hist. of Greenland*, tom. ii. p. 100.

behind Worland, in the land surrounding Hori-sont and Klock bays, in retired plains, and banks of sand, where vessels rarely approach. Even those which are there met with, instructed by the persecutions they have suffered, are so much on their guard, that they keep always near the water, to facilitate their retreat. This fact I experienced on the large bank of sand behind Worland, called *Rif*, where I fell in with a troop of thirty or forty. Some of them were on the very margin of the water, and others at no great distance from it. We stopped some hours, without landing, in hopes that they would advance farther into the plain. But, as this stratagem did not succeed, we landed with two boats to the right and left of them. Almost the whole of them were in the water the moment we put our feet on the land; so that our hunting was confined to the wounding of a few, which likewise instantly darted into the sea. . . . Before being persecuted, these animals advanced far upon land; so that, in high tides, they were at a great distance from the water; and, when the tide ebbed, the distance being increased, they were easily assailed. . . . We marched in front of these animals to cut off their retreat from the sea. They saw all these preparations without betraying any symptoms of fear; and each hunter often killed one of them, before it could regain the water. We made a barrier of the dead carcasses, and left some of our men in ambush to slay those which remained. We sometimes killed three or four hundred. . . . From the

prodigious quantity of teeth scattered over the ground, it is obvious that these animals must have formerly been very numerous. . . . When wounded, they become furious, striking from one side to the other with their teeth. They break the arms, or drive them out of the hands of their assailants; and, at last, burning with rage, they place their head between their paws, or fins, and allow themselves to tumble into the sea. . . . When very numerous, they grow so audacious, that, in order to secure one another, they surround the boats, and endeavour to upset them, by striking or piercing the planks with their teeth. . . . In fine, this elephant of the sea, before he became acquainted with men, was afraid of no enemy; because he had learned to conquer the rapacious Greenland bear, which may be ranked among the number of sea-robbers."

By adding to Zorgdrager's remarks those which are to be found in the Collection of Voyages to the North*, and others that are scat-

* "The sea-horse (*walrus*) resembles the sea-calf (*seal*), except that he is much larger; for he is of the size of an ox. His paws, both before and behind, like those of the sea-calf, have five toes; but the claws are shorter. His head is likewise larger, rounder, and harder, than that of the sea-calf. His skin, especially about the neck, is fully an inch thick. Some of them are covered with mouse-coloured hair, and others have very little hair. They are generally so infested with scabs and excoriations, that one should imagine they had been flayed, especially about the joints, where the skin is much wrinkled. In the upper jaw they have two large tusks, which sometimes exceed two feet in length. The young ones

tered in different relations, we shall have a pretty complete history of this animal. The species seems to have formerly been much more diffused

have no tusks ; but they grow as the animals advance in years. . . . These tusks are more esteemed than the finest ivory ; they are solid within, except near the roots. . . . The opening of their mouth is as large as that of an ox ; and, both above and below the lips, there are several bristles, which are hollow within, and as thick as a straw. . . . Above the whiskers, there are semicircular nostrils, through which they throw out water, like the whales, but with much less noise. Their eyes are situated high above the nose, and they are as red as blood. Their ears are not far from their eyes, and resemble those of the seal. Their tongue is at least as large as that of an ox. . . . Their neck is so thick, that it is with difficulty they can turn their head, which obliges them to move their eyes almost continually. Their tail is short, like that of the seal. Their grease is not so easily removed as in the seals, because it is interlarded with flesh. . . . Their penis consists of a hard bone, about two feet long, which tapers toward the point, and is a little bended in the middle. Very near the belly, the penis is flat ; but, beyond that, it is round and covered with sinews. . . . These animals, it is probable, live upon herbs and fishes ; their dung resembles that of a horse. . . . When they dive, like the seals, they plunge their head first into the water. They sleep and snore, not only on the ice, but in the water ; so that they frequently have the appearance of being dead. They are bold and furious, and defend each other to the last drop of their blood. . . . They exert every effort to relieve those which are taken. They assault the boat on all sides, biting and bellowing in a hideous manner ; and if, by means of their number, they oblige the enemy to fly, they pursue the boat till they lose sight of it. . . . They are hunted solely for the sake of their teeth ; but out of a hundred, perhaps, not above one tooth is found to be good ; because some of them are too young, and others have spoiled teeth." — *Recueil des Voyages du Nord*, tom. ii. p. 117.

than at present. They were found in the seas of the temperate zones, in the Gulf of Canada *, upon the coasts of Acadia, &c. But they are now confined to the seas of the frozen zones, and, even there, they are very scarce in places which are much frequented. There are few of them in the frozen seas of Europe, and still fewer in those of Greenland, Davis's Straits, and other parts of North America; because, on account of the whale fishery, they have been long disturbed and hunted. From the end of the sixteenth century, the inhabitants of St. Malo went to the Ramée Islands in quest of the walruses, which were then very numerous†. It is not a hundred years since the merchants of Port-Royal in Canada sent barks to Cape Sable and Cape Fourchu.

* "In the latitude of forty-nine degrees forty minutes, there are three small islands in the Gulf of St. Lawrence, upon one of which, vast numbers of a certain species of seal come ashore. This animal, which, I believe, was unknown to the ancients, is called *walrus* by the Flemings, and *morse* by the English, who have adopted its Russian name. It is an amphibious and a monstrous creature, and sometimes surpasses the Flanders oxen in thickness. Its hair resembles that of the seal. . . . It has two tusks bended downward, which are a cubit in length, and used for the same purposes as ivory, and bring an equal price." — *Descript. des Indes Occidentales, par de Laët*, p. 41.

. . . . "Upon the coasts of North America, there are sea-cows, otherwise called *beasts with the long teeth*; because they have two large tusks, about a cubit in length, and their other teeth are four inches long. No ivory can be finer. These animals are found on Sable Island." — *Descript. de l'Amerique Septent. par Denis*, tom. ii. p. 257.

† *Descript. des Indes Occidentales, par de Laët*, p. 42.

to hunt these animals*, which have some time ago forsaken these latitudes, as well as those of the European seas; for they are now found in considerable numbers only in the frozen sea of Asia, from the mouth of the Oby to the most eastern point of that continent, the coasts of which are very little frequented. They are rarely seen in the temperate seas. The species found under the Torrid Zone, and in the Indian Ocean, is very different from our northern walrus. The latter seem to dread either the heat or the saltness of southern seas; and, as they have never traversed these seas, they are not found toward the south pole, though we see there the large and small seals of the north, which are even more numerous than in our arctic regions.

The walrus, however, can live at least some time in a temperate climate. Edward Worst tells us, that he saw one of these animals alive in England, which was three months old; that it was put into water for a short time only, each day; and that it crawled upon the ground. He does not say that it was incommoded by the heat of the air, but, on the contrary, that, when touched, it had the aspect of a furious and robust animal, and that it respired strongly through the nose. This young walrus was of the size of a calf, and had a great resemblance to the seal. Its head was round, its eyes large, and its nostrils flat and black, which it opened and shut at pleasure. It had no ears, but only two auditory pas-

* Descript. de l'Amerique Septent. par Denis, tom. i. p. 36.

sages. The opening of the mouth was not large; and the upper jaw was garnished with whiskers consisting of coarse, thick, cartilaginous hairs. The under jaw was triangular, the tongue thick and short, and the inside of the mouth fortified on each side with flat teeth. Both the fore and hind-feet were broad, and the hind part of the body was perfectly similar to that of the seal. This hind part crawled rather than walked. The fore-feet turned forward, and those behind backward. They were all divided into five toes, covered with a strong membrane. . . . The skin was thick, hard, and covered with short delicate hair, of an ash-colour. This animal grunted like a wild boar, and sometimes cried with a strong, deep voice. It was brought from Nova Zembla, and had not yet acquired the two tusks; but, on the upper jaw, the knobs from which they were to spring were visible. It was fed with boiled oats or millet, which it rather slowly sucked than eat. It sprung with fury at its master, and made a growling noise. It followed him, however, when he presented it with victuals*.

This account, which gives a tolerably just idea of the walrus, shows, at the same time, that it can live in a temperate climate. Nevertheless, it does not appear that it could endure great heat, or has ever frequented the southern seas, so as to pass from the one pole to the other. Several voyagers mention sea-cows which they have seen

* Descript. des Indes Occidentales, par de Laët, p. 41.

in India; but these belong to a different species: that of the walrus is always easily distinguished by its long tusks, which no other animal has, except the elephant. This production is an effect rarely exhibited in Nature; *for, of all the terrestrial and amphibious animals, the elephant and walrus, in which alone it appears, are solitary species, and constitute distinct and undivided genera.

We are assured that the walruses couple not in the manner of quadrupeds, but backward.

The male, like the whales, has a large bone in the penis. The females bring forth in winter upon the land, or upon masses of ice, and generally produce but one young at a time, which, when born, is as large as a hog of a year old. We are ignorant of the period of gestation; but, to judge of it from that of the growth, as well as the magnitude of the animal, it ought to be more than nine months. The walruses cannot remain always in the water, but are obliged to come upon land, either to suckle their young, or for other purposes. When under the necessity of climbing steep shores, or islands of ice, they use their teeth * and hands as hooks to drag along the unwieldy masses of their bodies. It is alleged that they feed upon shell-fishes, which adhere

* "These teeth are not entirely round and smooth, but rather flat, and slightly furrowed. The right tooth is commonly somewhat longer and stronger than the left. . . . I have had two of them, each of which was two feet and an inch long, and eight inches in circumference at the base."—*Anderson's Nat. Hist. of Greenland*,

to the bottom of the sea; and that they use their tusks to disengage them *. Others affirm †, that they live upon a certain sea-herb with broad leaves, and that they neither eat flesh nor fish. But I believe none of these assertions to be true. The walrus, it is probable, lives upon prey, like the seal, and particularly on herrings and small fishes; for he eats none upon land, which obliges him to return to sea in quest of food.

To what we have said respecting the morse, we shall add some observations which Mr. Crantz made on that animal in his voyage to Greenland.

“ One of these morses,” says Mr. Crantz, “ was eighteen feet long, and nearly as much round in its thickest part: its skin was wrinkled, particularly about the neck; its fat was as white and firm as lard, and about three inches thick; the head was oval; the mouth was so narrow that it would scarcely admit a finger; the lower lip is triangular, ending in a point, rather projecting between the two tusks, which separate it from the upper lip; there is a spongy skin on both lips and on each side of the nose, from whence proceed thick and harsh whiskers, six or seven inches long, twisted like a cord of three threads, which gives this animal a kind of grim dignity. Muscles and seaweed were its ordinary food; the tusks were twenty-seven inches long, seventeen of which were concealed in the thickness of the skin, and in the sockets, which extended even to the cranium;

* Nat. Hist. of Greenland, p. 162.

† Descript. des Indes Occidentales, par de Laët, p. 42.

each tusk weighed four pounds and a half, and the whole cranium weighed twenty-four pounds *."

According to the navigator Kracheninnikow †, the morses, which he calls *sea-horses*, neither enter fresh water, nor go up rivers, like seals. "We saw but few of these animals," says he, "about Kamtschatka, and it is only in the seas to the northward that they are found: a great many are taken near cape *Tchukotskoi*, where they are larger and more abundant than elsewhere. The value of their teeth depends on their size and weight; the dearest are those which weigh twenty pounds, but they are very rare, as they (commonly) do not weigh more than five or six pounds."

Frederick Martens had previously observed some of the natural habits of these animals: he asserts that they are strong and courageous, and that they defend each other with extraordinary resolution. "When I wounded one," says he, "the others collected round the boat, and pierced it with their tusks; others again raised themselves out of the water, and made every possible effort to fling themselves into the boat: we killed several hundreds at the island of *Muff*. . . . and we were generally contented to carry away the head for the sake of the teeth ‡."

It is said that these animals go in vast herds, and they were formerly almost innumerable in many parts of the northern seas. M. Gmelin

* *Histoire Generale des Voyages*, t. xix. p. 60 et suiv.

† *Histoire du Kamtschatka*; Lyon, 1767, t. i. p. 283,

‡ *Voyage to Greenland*.

reports that, in 1705 and 1706, the English, at the isle of Cherry, killed from seven to eight hundred in six hours; that in 1708 they killed nine hundred in seven hours; and, in 1710, eight hundred in a day. "The teeth of these animals," says he, "are found on the sea-shore, and appear as if they came from those that died: a great many of these teeth are found on the coast of Tschutschis, where the natives collect them in heaps, to make their tools of them *.

We perceive, by the accounts of all the navigators who have frequented the north seas, that a vast number of these great animals have been destroyed, and that the species is actually by no means so numerous as it was formerly: they have retired towards the north, and into places less frequented by fishermen, who no longer meet with them in the same places where they were, long ago, in such great abundance. We have seen that it is nearly the same with the seals, and with all those marine amphibia whose instinct leads them to unite in herds, and form a kind of society: man has broken all those societies, and the majority of these animals actually live in a state of dispersion, and are unable to reassemble, except near the desert and unknown shores †.

* Voyage de Gmelin, tom. ii.

† Captain Cook has given the best figure of this huge animal in the fifty-second plate of his Third Voyage, accompanied with the following account of a herd of walruses: "They lie in herds of several hundreds upon the ice, huddling one over the other like swine, and roar or bray very loud; so that in the night, or in foggy weather, they gave us notice of

the vicinity of the ice, before we could see it. We never found the whole herd asleep, some being always upon the watch. These, on the approach of the boat, would wake those next to them; and the alarm being thus gradually communicated, the whole herd would be awake presently. But they were seldom in a hurry to get away, till after they had been once fired at: then they would tumble one over the other in the utmost confusion. And if we did not, at the first discharge, kill those we fired at, we generally lost them, though mortally wounded. They did not appear to us to be that dangerous animal some authors have described; not even when attacked. They are rather more so to appearance than reality. Vast numbers of them would follow, and come close up to, the boats. But the flash of a musket in the pan, or even the bare pointing of one at them, would send them down in an instant. The female will defend the young one to the very last, and at the expense of her own life, whether in the water or upon the ice. Nor will the young one quit the dam, though she be dead; so that if you kill one, you are sure of the other. The dam, when in the water, holds the young one between her fore fins."

The Esquimaux use the skin of the walrus for cloathing; and Ochter the Norwegian, says it is good to cut into cables. That early navigator was acquainted with the value of these animals, and, being attracted by the fame of the renowned Alfred, visited his court in the year 890, and reported to him that he had "*made the royaume beyond Norway, for the more commoditie of fishing of horse-whales, which have in their teeth bones of great price and excellencie, whereof he brought some at his returne unto the king.*" — Haklüt's Coll. Voy. i. p. 5. — Penn. Hist. Quadr. ii. p. 268.

THE INDIAN WALRUS, OR DUGON*.

THE dugon is an animal of the African and East Indian seas. We have seen two heads of it, which had a greater resemblance to the head

* CHARACTER SPECIFICUS.

TRICHECUS DUGONG. T. dentibus laniariis superioribus exsertis approximatis. — *Linn. Syst. Nat. Gmel. i. p. 60.*

Trichecus (Dugung) dentibus laniariis superioribus exsertis brevioribus. — *Erxleb. Mamm. p. 599.*

DER DUGUNG. — *Schreb. ii. p. 267, No. 2. — Mull. Natur. Suppl. p. 21.*

LE DUGON. — *Buff. Hist. Nat. par Sonn. xxxiv. p. 104.*

INDIAN WALRUS. — *Penn. Hist. Quadr. ii. p. 269. — Shaw's Gen. Zool. i. p. 239.*

HABITAT

ad Caput Bonæ Spei et circa insulas Philippinas species subobscura. W.

Indian walrus, with two short canine teeth, or tusks placed in the upper jaw, pretty close to each other. In the upper jaw are four grinders on each side; in the lower, three on each side. — *Penn. Synops. Quadr. p. 338.*

Dugon, or *dugung*, the name of this animal in the isle of Lethy, or Leyte, one of the Philippine islands, where, according to Christ. Barchewick, it is also called *ikan* and *manate*. This last denomination would indicate that the *dugung* is a *manati* or *lamentin*. But this author, in his description, tells us, that the *dugung* has two tusks of an inch thick, and a span

of the walrus than to that of any other animal. Its head is deformed nearly in the same manner by the depth of the sockets, from which the two tusks in the upper jaw spring. They are half a foot long, and are rather large cutting teeth than tusks. They extend not directly out of the mouth, like those of the walrus; but are much shorter and more slender. Besides, they are situated in the fore part of the jaw, and very near each other, like cutting teeth. But between the tusks of the walrus, there is a considerable interval; and they are not situated at the point, but at the side of the upper jaw. The grinders of the dugon differ likewise in number, position, and figure, from those of the walrus. From all which we must conclude, that the dugon is a distinct species. Several voyagers have confounded it with the sea-lion. Innigo de Biervillas says, that a sea-lion was killed at the Cape of Good Hope, which was ten feet long, and four thick. Its head resembled that of a calf of one year old. Its eyes were hideous, and its ears short; and it had a bristly beard, broad feet, and legs so short, that its belly touched the ground. He adds, that it had two tusks which issued half a foot out of the mouth*. This last character corresponds not with the sea-lion, which has no tusks, but teeth like those of the seal. From this circumstance I concluded, that

long. This character cannot apply to the manati, but agrees very well with the animal under consideration, of which we have a head.

* Voyage de Innigo Biervillas, part. i. p. 38.

it was not a sea-lion, but the animal to which we have given the name of *dugon*. Other travellers seem to have pointed it out under the denomination of the *sea-bear*. Spilberg and Mandelslo relate, "that, at the island of St. Elizabeth, on the African coast, there are animals which should rather be called *sea-bears*, than *sea-wolves*; because, by their hair, their colour, and their head, they have a greater resemblance to the bear, only the muzzle is sharper; that they resemble the bear still more in their manner of moving, except in the movement of the hind-legs, which are only trailed; that these amphibious creatures have a terrible aspect, fly not from man, and bite with such force as to break the shaft of a javelin; and that, though denied the use of their hind-legs, they fail not to run with such swiftness that it is difficult for a man to overtake them*." Guat tells us, "That he saw, at the Cape of Good Hope, a sea-cow of a reddish colour. It had a thick round body, large eyes, long tusks, and a muzzle a little turned up. He adds, that he was assured by a mariner, that this animal, of which we could see the fore-part only, as it was in the water, had feet†." This sea-cow of Guat, the sea-bear of Spilberg, and the sea-lion of Biervillas, appear to be the same animal with the dugon, whose head was sent to us from the Isle of France, and which, consequently, exists in the southern seas, from

* Premier Voyage de Spilberg, tom. ii. p. 437; Voyages de Mandelslo, tom. ii. p. 551.

† Voyage de le Guat, tom. i. p. 36.

the Cape of Good Hope to the Philippine islands *. Besides, we cannot be certain that this animal, which has some resemblance to the walrus in the head and tusks, has four feet. We only presume, from analogy and the testimony of travellers, that it has these members. But, as the analogy is not very great, and the testimony of travellers not sufficiently explicit, we shall suspend our judgment on this subject, till we receive better information.

* "I could see from my house, which was situated on a rock in the island of Lethy, the turtles at some fathoms deep in the water. I one day saw two large *dugungs*, or *sea-cows*, which approached near the rock." I instantly informed my fisher, to whom I showed the two animals, which were moving about and eating a green moss that grows on the shore. He ran for his companions, who soon brought a boat to the place. During this time, the male came in quest of the female, and, being unwilling to leave her, allowed himself to be slain also. Each of these prodigious fishes was more than six ells long. The male was a little larger than the female. Their heads resembled that of an ox. *They had two large teeth, a span in length and an inch thick*, which protruded out of the jaw, like those of the wild bear. These teeth were as white as the finest ivory. The female had two breasts, like those of a woman; and the male organs of generation resembled those of a man. The intestines were like those of a cow, and the flesh had nearly the same taste." — *Voyage de Christopher Burchewitz*, p. 381. Note, This description corresponds very well with that of the manati, except the teeth. The manati has neither tusks nor cutting teeth; for which reason I conjecture that this dugung was not the manati, but the animal under consideration.



YOUNG MONATI

THE MANATI

IN the animal kingdom, the terrestrial tribes commence where the fishes terminate. The manati, which is neither a quadruped nor a whale,

* The manati has pinniform fore-legs; hind parts ending in a tail, horizontally flat. These animals are of an enormous size; some of them are twenty-eight feet long, and 8,000 pounds in weight. The head, in proportion to the bulk of the animal, is small, oblong, and almost square. The nostrils are filled with short bristles. The gape, or *rictus*, is small. The lips are double. Near the junction of the two jaws, the mouth is full of white tubular bristles, which serve the same use as the laminæ of whales, to prevent the food from running out with the water. The lips are also full of bristles, which serve instead of teeth to cut the strong roots of the sea-plants, which, floating ashore, are a sign of the vicinity of these animals. In the mouth are no teeth, only two flat white bones, one in each jaw, one above, another below, with undulated surfaces, which serve instead of grinders. The eyes are extremely small, not larger than those of a sheep. The iris is black. It is destitute of ears, having only two orifices, so small that a quill will scarce enter them. The tongue is pointed, and but small. The neck is thick, and its junction with the head scarce distinguishable; and the last always hangs down. The circumference of the body near the shoulders is twelve feet, about the belly twenty, near the tail only four feet eight; the head thirty-one inches; the neck near seven feet: and from these measurements may be collected the deformity of this animal. Near the shoulders are two feet, or rather fins, which are only two feet two inches

retains the two fore-feet, or rather hands, of the former. But the hind-legs, which, in the seal and walrus, are almost entirely included within the body, and very much contracted, are totally obliterated in the manati. Instead of two short feet, and a still shorter tail, which the walrus carries in a horizontal direction, the manati has only a large tail, which spreads out like a fan,

long, and have neither fingers nor nails; beneath, they are concave, and covered with hard bristles. The tail is thick, strong, and horizontal, ending in a stiff black fin, and like the substance of whalebone, and much split in the fore part; the end slightly divided.

The skin is very thick, black, and full of inequalities, like the bark of oak, and so hard as scarce to be cut with an ax, and has no hair on it. Beneath the skin, is a thick blubber, which tastes like oil of almonds. The flesh is coarser than beef, and will not soon putrify. The young ones taste like veal. The skin is used for shoes, and for covering the sides of boats. — *Penn. Synops. Quadr.* p. 355.

It is alleged that the name *lamantin* was applied to this animal on account of its lamentable cries; which is entirely fabulous. This word is a corruption of the name given to the animal in the language of the Galibis, who inhabit Guiana, and of the Caribs, who live in the Antilles; for they are the same race of people, and have nearly the same language. They call the lamantin *manati*, for which the negroes of the French islands, who corrupt words of every kind, by adding the article, made it *lamanati*. From *lamanati* they still farther corrupted it into *lamannati*, and *lamenti*. After which it was supposed to be derived from *lamentari*, on account of the supposed lamentations of the female when deprived of her young. — *Lettre de M. de le Condamine à M de Buffon*, du 28 Mai, 1764. It ought, however, to be remarked, that *manati* is a Spanish word, which, according to several authors, denotes an animal with hands.

in the same direction ; so that, at first sight, the tail of the former seems to be divided into three, and that, in the latter, these three parts appear to be united into one. But, from a more attentive observation, and particularly from dissection, it appears, that no such union takes place ; that there is not a vestige of thigh bones and legs ; and that the bones which compose the tail of the manati are simple vertebræ, similar to those of the cetaceous animals, who have no feet. Hence those animals are cetaceous by the hind part of their bodies, and are only allied to the quadrupeds by the two fore-feet, or hands, on each side of the breast.

It seems, therefore, that Nature has formed the manati as a connecting link between the amphibious quadrupeds and the whales. These intermediate beings, placed beyond the limits of each class, appear to us imperfect, although they are only extraordinary and anomalous ; for, when attentively examined, we soon perceive that they possess every requisite for the situation which they are designed to occupy in the chain of animated nature.

Besides, these animals, though of a shapeless exterior, are very well organized within ; and, if we judge of the perfection of organization by the aggregate of sense, these animals, perhaps, should be more perfect, internally, than others, for their disposition and manners seem to convey something of intelligence, and of the social qualities. They are not afraid of mankind ; they even af-

fect to approach, and to follow him with confidence and security: this natural impulse for all society, is, in the highest degree, apparent in them towards their fellows. They almost constantly remain in herds, and press against each other, with their young in the centre, to preserve them from every accident: they mutually assist each other in the time of danger; and they have been seen attempting to draw out the harpoon from the body of their wounded companion*: the little ones are often seen following the dead bodies of their mothers even to the shore, whence the fishermen drag them with cords†. They show as much fidelity in their amours as attachment to their friends. The male communicates with one female only, which he constantly attends both before and after their union: they copulate in the water, the female turning upon her back, for they never land, nor can they even drag themselves along in the mud. The foramen ovale of their heart is open, consequently the female can remain under water during copulation.

These animals are not found in the open seas at a great distance from land, but inhabit the neighbourhood of coasts and islands, particularly about the shores which produce the fuci and other marine herbs, which serve them for food: their flesh and fat are equally good to eat; and

* See the article *Kamtschatkan manati*.

† See *Dutertre, Histoire de Antilles*.

it is on this account that a cruel war is waged against them, and that the species is diminished on most of the coasts inhabited by any number of mankind.

We are acquainted with four or five species of manati, in all of which the head is very little, the neck very short, the body thick, and very large, even to the origin of the tail, from whence it tapers to the beginning of the fin, which terminates the tail, like a fan extended horizontally. Their eyes are very small, and generally situated at an equal distance between the auditory holes and the end of the snout. These holes, which serve them for ears, are marked by two little openings, which, unless attentively inspected, could not be perceived: the skin is rough, very thick, and, in some species, sprinkled with a few hairs: the tongue is straight, of a moderate length, and very small in proportion to the body: the generative organ is placed in a fur, which adheres to the skin of the belly and extends to the navel: the vulva of the female is large, with an apparent clitoris; this part is not situated as in other animals, below, but above the anus: their teats are on the breast, and are very prominent during the term of gestation, and while suckling their young; but at all other times they appear only as buttons.

These are the general characters, and common to all the manatis; but there are particulars by which the species may be distinguished: for instance, the great manati of Kamtschatka absolutely wants the toes and nails in both hands, or

fins: it is also without teeth; and it has, in each jaw, only a strong hard bone, which it uses to break its food. On the contrary, the manatis of America and Africa, have toes and nails, and molar teeth in the bottom of the mouth.

THE GREAT KAMTSCHATKAN MANATI*.

THIS species is numerous in the eastern seas beyond Kamtschatka, especially near Bering's Island, where M. Steller described, and even dissected some individuals†. This great manati seems to delight in the muddy sea shores: it also willingly enters the mouths of rivers, but it does not swim up them to feed on the herbage which grows on their banks, for it constantly inhabits

* CHARACTER SPECIFICUS.

TRICHECUS BOREALIS. T. nudus, cauda horisontali loco pedum posteriorum. — *Shaw's Gen. Zool.* i. p. 240.

TRICHECUS MANATUS. T. nudus, pedibus nec digitis nec unguibus instructis. — *Linn. Syst. Nat. Gmel.* i. p. 61. Var. β:

LE GRAND LAMANTIN DE KAMTSCHATKA. — *Buff. Hist. Nat. par Sonn.* xxxiv. p. 197.

WHALE-TAILED MANATI. — *Penn. Hist. Quadr.* p. 292.

WHALE-TAILED TRICHECUS. — *Shaw's Gen. Zool.* i. p. 240.

HABITAT

ad littus Americæ occidentale, et insularum inter Americam et Kamtschatkam positarum, frequentissime quoque ostia fluviorum intrans. W.

† Steller described this animal in the *Nov. Comm. Petrop.* ii. 1751; and killed it at Bering's Island, July 12, 1742.

water that is either salt or brackish. It differs, therefore, in this respect, as well as in size, from both the Guiana manati and that of Senegal. Its hands, or arms, are of no service upon land, and are only used by the animal in swimming. "I have seen one of these animals," says M. Steller, "left dry, by the ebbing of the sea; it could not move itself to the water-side, and we killed it on the shore with hatchets and poles."

These great manatis, which are seen in herds about Bering's Island, are so tame, that they will suffer themselves to be touched with the hand. They are so careless of their safety, that no danger disturbs them; and they hardly raise their heads out of the water*, when threatened, or struck, particularly in feeding. They must be severely beaten to make them move to a distance; and in a moment after they return to the same place, and seem to have forgotten the ill treatment that they had just suffered. If the majority of navigators do not say nearly the same thing of other species of manatis, we must believe that these animals are so confident and tame, about Bering's Island, only because experience has not as yet taught them what it costs all those that become familiar with mankind†.

* Kracheninnikow, Hist. Kamtschatka, tom. i. p. 317.

† M. Steller says, that "the sea-otters (*saricoviennes*), the seals, and the isatis of Bering's Island, being unacquainted with man, are fearless; but these animals, on the contrary, are very ferocious on the coasts of Kamtschatka, because they have proved the power of mankind, the very smell of whom puts them to flight." — *Novi. Comm. Petrop.* tom. ii. 1751.

Each male appears to attach itself to one female only, and both are commonly accompanied, or followed, by one cub of the last birth, and another larger, of the birth preceding: thus, in this species, one only is born at a time; and, as the term of gestation is about a year*, we may infer that the young do not quit their parents till they are strong enough to manage for themselves, and perhaps old enough to become, in their turn, chiefs of a new family.

These animals copulate in the spring, and more frequently towards the evening than at any other time: they profit, however, by a calm sea, and their union is preceded by signs and motions indicative of their desires. The female swims gently, making several circumvolutions, as if to invite the male, who soon approaches, following very near, and waiting impatiently till she turns upon her back to receive him; at this moment he covers her. They are not only sensible of love and mutual fidelity, but also of a strong attachment for their family, and even for the whole species. They reciprocally assist each other when wounded; they accompany those that are

* To judge by what M. Kracheñinnikow says (*Hist du Kamtsch.* tom. i. p. 316), it appears that the term of gestation ought not to be more than eight or nine months; for he asserts that the females bring forth in autumn, and that they copulate in spring; but as M. Steller has for a long time observed these animals in Bering's Island, and has described them very well, we think that we ought to adopt his evidence, and pronounce (according to his recital) that, in this species, the term of gestation is about a year.

dead, and which the fishermen drag to the sea shore. "I have seen," says Steller, "the attachment of these animals for each other, and especially that of the male for the female: having harpooned one, the male followed as soon as we drew it to the shore; and the blows which we gave him from all sides, did not repulse him: he did not even abandon the other after death; for, the next day, when the sailors went to cut up the female, they found the male at the water's edge, which he had never quitted *."

The manatis are the more easily harpooned, since they scarcely ever plunge entirely under water; but it is easier to take the adults than the little ones, or the young, because these last swim very quick, and often escape, leaving the harpoon tinged with blood, or loaded with their flesh. The harpoon (the point of which is of iron) is fastened to a long cord; four or five men go on board a boat; the chief, who is forward, holds, and throws the harpoon; and, when he has struck the manati, twenty-five, or thirty men, who hold the end of the rope on shore, attempt to draw it to land. Those in the boat also hold a rope, which is tied to the principal, and they do not cease to drag the animal until it is entirely out of the water.

The manati bleeds abundantly from its wounds; "and I have remarked," says M. Steller, "that the blood spouts out like a fountain, which stops as soon as the animal plunges its head under

* Nov. Comm. Petrop. tom. ii. ann. 1751.

water, but that the flow returns whenever it raises its head to breathe; from whence I conclude, that, in these animals, as in the seals, the blood has a double way of circulating; viz. under the water by the foramen ovale of the heart, and in the air by the lungs*."

These animals feed entirely on the fuci, and some other herbs that grow in the sea; they cut the stems of these herbs with their lips, which are very hard. They bury their head under water to procure them, and only raise it again to breathe; insomuch, that while they eat, the fore part of the body is always under water, and half the sides, and all the hind part is above it: when they are satisfied, they lie upon their backs in the water, and sleep very profoundly in that position†. Their skin, though continually washed, is not very clean; they produce and harbour a great quantity of vermin, which the gulls, and some other birds, perch on their backs to eat. Finally, these manatis, which are very fat in spring and summer, are so thin in winter, that their vertebræ and ribs may be easily seen under the skin, and, in that season, some are met with which have perished among the floating ice.

The body of this animal is covered with several inches of fat, which, when exposed to the sun, takes the yellow colour of butter; it is very well

* Nov. Comm. Petrop. tom. ii. ann. 1751.

† Kracheninnikow, Hist. du Kamt. tom. i. p. 219.

tasted, and even of a pleasant smell; the natives prefer it to that of every quadruped, and the property it possesses of keeping a long time, even in the heat of summer, makes it still more valuable. It may be used for the same purposes as butter, and eaten as well: that obtained from the tail is particularly delicate; it also burns very well, without smelling strongly, or smoking disagreeably. The flesh tastes like beef, only it is not so tender, and requires a longer time to cook, especially that of the old ones, which must be boiled a long while to make it eatable.

The skin is a kind of leather, an inch thick, and, on the outside, more like the rough bark of a tree, than the skin of an animal; it is bare, and of a blackish colour; there are merely some harsh and long bristles about the fins, round the mouth, and within the nostrils, from which we may presume that the manati cannot close them so often, nor for so long a time, as the seals, the nostrils of which are bare withinside. This skin of the manati is so hard, especially when it is dried, that it can scarcely be cut with an ax. The Tschutschis construct their little boats with it, as the other northern people do with the skin of the great seals.

The manati described by M. Steller, weighed 200 Russian poods, that is to say, about 800 pounds; it measured twenty-three feet: the head (very small in proportion to the body) is of an oblong shape; it is flat at top, and tapers to the end of the muzzle, which turns down in such

a manner that the mouth is entirely beneath*: it has a small opening (gape), surrounded by double lips both above and below; the upper and lower external lips are thick and much inflated; a great many tubercles are seen on their surface, from which proceed the white bristles, or whiskers, four or five inches long: when the animal feeds, these lips move in the same manner as the horse's. The nostrils, which are situated near the end of the muzzle, are an inch and a half long, and about as wide when they are quite open†.

The lower jaw is shorter than the upper, but neither of them have any teeth: there are only two hard and white bones, one of which is fixed to the palate, and the other to the lower jaw; these bones have several little holes in them; their external surface is nevertheless solid, and indented in such a manner that the nourishment is ground between the two bones in a very short time.

The eyes are very small, and situated precisely in the middle, between the end of the muzzle and the auditory holes: there are no eyebrows, but in the great angle of each eye is found a cartilaginous membrane in the shape of a crest, with which, as in the sea-otter (*saricovienne*) the animal can entirely cover the globe of the eye at pleasure.

* Clusius and Hernandez, who have described the West Indian manati, do not seem to have observed it accurately; for the head is not as they represent it, but very like that of the Kamtschatkan manati.

† Kracheninnikow, *Hist. du Kamt.* tom. i. p. 314.

It has no external ears, there are merely two round holes, so small as scarcely to admit a goose quill, and as these auditory channels escaped the observation of the generality of navigators, they believed that the manatis were deaf, because they seemed to be dumb; for M. Steller asserts that those of Kamtschatka never make any noise, besides what is occasioned by their strong respiration; however, M. Kracheninnikow says that it brays or bellows*, and the Elder Magnien of Fribourg † compares the cry of the American manati to a weak lowing.

In the Kamtschatkan manati, the neck is hardly distinguished from the body, it is only a little thinner near the head than in the rest of its length. But a singular character, in which this animal differs from all others, terrestrial or marine, is, that the arms, which go off from the shoulders near the neck, and which are more than two feet long, are formed and articulated like the arms and fore-arms of a man: this fore-arm of the manati terminates in a metacarpus and carpus, without any vestige of fingers or nails; characters which again separate this animal from the class of quadrupeds. The carpus and metacarpus are surrounded with fat and with tendinous flesh, covered with a hard and horny skin.

They count sixty vertebræ in this manati, and the tail begins at the twenty-fifth, and continues for thirty-five others, so that, in the trunk, there

* Hist. du Kamt. tom. i. p. 321.

† Extract of a manuscript translated from the Spanish by M. de la Condamine.

are only thirty-five; the West Indian manati has fifty-two from the neck to the end of the tail: a foetus of the Guiana manati had twenty-eight in the tail, sixteen in the back, and six in the neck, in all fifty*. Therefore, supposing that there were seven vertebræ in the neck of the West Indian manati, it should have fifty-nine in all. The tail tapers, and, in the Kamtschatkan species, is rather square than flat: it ends in a thick and very hard fin, which spreads horizontally, and is of a substance somewhat like whalebone.

. The two teats are situated on the breast, they are about six inches diameter during gestation, and while the mother suckles her young: but at other times they appear only like a great wart, or button: the milk is rich, and tastes like that of the sheep.

The manati killed in Bering's Island on the 12th of July, 1742, measured, according to Steller, twenty-three feet one inch six lines, from the upper lip to the end of the tail: it was eleven feet three inches round at the shoulders, and nineteen feet and nine lines in circumference at the abdomen. The total length of the intestines, when unravelled, was 466 feet 3 inches.

* See the article Little American Manati.

THE GREAT WEST INDIAN MANATI*.

WE have called this species the great West Indian manati, because it is still found about the Antilles, although it has, however, become rare since they have been much peopled. This manati differs from that of Kamtschatka by the following characters; the rough and thick skin is not absolutely naked, but sprinkled with some hairs, which, as well as the skin, are of a slate-colour†. There are five visible nails in the

* CHARACTER SPECIFICUS.

TRICHECUS AUSTRALIS. T. pilosus, cauda horisontali loco pedum posteriorum. — *Shaw's Gen. Zool.* i. p. 244.

TRICHECUS MANATUS. T. pilosus, pedibus tetradactylis unguiculatis. — *Linn. Syst. Nat. Gmel.* i. p. 60, Var. α.

LE GRAND LAMATIN DES ANTILLES. — *Buff. Hist. Nat. par Sonn.* xxxiv. p. 212.

ROUND-TAILED MANATI. — *Penn. Hist. Quadr.* ii. p. 296, pl. 102. — *Shaw's Gen. Zool.* i. p. 244, pl. 69.

HABITAT

in mari Africano et Americano, præsertim ad ostia fluviorum.

W.

† The skin of the manati of the Antilles is thick, wrinkled in some places, and sprinkled with little hairs; when dried

hands*, very like those of a man: these nails are very short: it has besides, not only a bony callosity in front of each jaw, but thirty-two grinding teeth at the bottom of the mouth†. It appears certain, on the contrary, that, in the Kamtschatkan manati, the skin is absolutely bare, the hands without bones, or fingers, or nails, and the jaws without teeth: all these differences are sufficient to constitute two separate and distinct species. Besides, these manatis are very different in the size and proportions of their bodies: the West Indian one is smaller than that of Kamtschatka; it has also a thinner body; it is but twelve, fourteen, fifteen, eighteen, and rarely twenty feet long, unless it be very old; the one described in the *Nouveau Voyage aux îles de l'Amerique*, printed at Paris in 1722, was but eight feet in circumference, and fourteen feet long, whilst the Kamtschatkan manati, of which we have spoken, was about eighteen feet round, and twenty-three feet some inches long. Notwithstanding all these differences, these two species are alike in every other part of their conformation: they have likewise the same natural habits; both are equally fond of their species, and are of a gentle, quiet, and sanguine disposition: they do not seem to be afraid of mankind.

Oviedo seems to be the first author who has

it makes a shield impenetrable to the arrows of the Indians.—*Hist. Nat. et Moral. des Antill.* p. 178.

* *Hist. Mex.* p. 323 et suiv.

Oexmelin, *Hist. des Aventur.* t. xii. p. 334 et suiv.

given a kind of history and description of this manati: "This animal," he remarks, "is pretty frequent on the coasts of St. Domingo. He is very large, and of a deformed figure, with a head thicker than that of an ox, small eyes; and two feet, or hands, near the head, which serve him for swimming. He has no scales, but is covered with a very thick skin. He is a very gentle creature. He rises on the waves, and eats such herbage on the shore, as he can reach without coming out of the water. He generally swims on the surface. In order to seize him, the people endeavour to approach him with a boat, and then dart at him a large arrow, fixed to a very long rope. As soon as he feels himself wounded, he runs off with the arrow and rope, to the extremity of which a large piece of cork or wood is tied, to serve as a buoy, that they may discover his route. When the animal is exhausted by the wound and loss of blood, he approaches the land. They then lay hold of the end of the rope, and coil it up, till a few fathoms only remain. By the aid of the waves, he is gradually brought to land, or he is killed in the water with spears. His weight is so great, that a carriage drawn with two oxen is necessary to transport him. His flesh is excellent, and, when fresh, is preferred to beef or fish. When cut into pieces and pickled, it in time acquires the taste of the tunny fish, and, in this state, it is most highly relished. Some of these animals are more than fifteen feet long, by six in thickness. The hind part of the body is much thinner, and tapers toward the

tail, which again spreads out at the extremity. As the Spaniards call the fore-feet of all quadrupeds *hands*, and as this animal has only two fore-feet, they have denominated it the *manati*, or the *animal with hands*. He has no external ears, but two apertures only, through which he hears. On his skin there are only a few scattered hairs; it is of an ash-colour, and an inch thick. Soles of shoes, belts, &c., are made of it. The female has two paps on her breast, and generally brings forth two young, which she suckles*." All these facts related by Oviedo are true; and it is singular, that Cieça†, and several subsequent writers, should affirm, that the manati comes often out of the water to pasture on the land. They have been led into this notion from the analogy of the walrus and seals, which frequently quit the water, and continue for some time on the land. But it is certain that the manati never leaves the water, and that he prefers fresh water to salt.

Clusius measured the skin of one of these animals, and found it to be sixteen feet and a half long, and seven and a half broad; the two feet, or hands, were large, and armed with short claws. Gomara‡ assures us, that he sometimes found them of twenty feet in length: and adds, that they frequent the rivers as well as the sea. He relates, that a young manati was reared in a lake in the island of St. Domingo during twenty-six

* Ferdin. Oviedo, Hist. Ind. Occid. lib. xiii. cap. x.

† Chron. Peruv. cap. xxxi.

‡ Fr. Lopes de Gomara, Hist. Gen. cap. li.

years; that he was so gentle and tame, that he took peaceably the food which was presented to him; that he knew his name, and, when called upon, came out of the water, and crawled to the house to receive his victuals; that he seemed to be pleased with the human voice, and the chanting of children; that he had no fear; that he allowed the boys to sit on his back, and carried them from one end of the lake to the other, without plunging them into the water, or doing them any injury. This relation cannot be true in all its circumstances: it seems to be accommodated to the fable of the ancients concerning the dolphin; for the manati is unable to crawl on the ground.

Herrera says very little on this subject: he only assures us, that, though very large, the manati swims easily, makes no noise in the water, and dives when he hears any distant sound*.

Hernandes, who gives two figures of the manati, the one in profile and the other in front, hardly adds any thing to what had been said by former Spanish authors. He only remarks, that both the Atlantic and Pacific oceans, as well as the lakes, produce a deformed animal, called *manati*, the description of which he copies almost entirely from Oviedo; and then adds, that the hands of this animal have five nails, like those of man; that it has a large navel and anus; that the vulva resembles that of a woman; that the

penis is like that of a horse; that the flesh and grease are similar to those of a fat hog; that the ribs and viscera resemble those of a bull; that they couple on land, the female lying on her back; and that they produce but one young, which is of a monstrous size the moment it is brought forth*. The copulation of these animals cannot take place on land, because they are unable to walk; but it is performed in shallow water. Binet† remarks, that the manati is of the size of an ox, and as round as a tun; that he has a small head and very small tail; that his skin is as coarse and thick as that of the elephant; that some of them are so large as to yield more than 600 pounds of excellent meat; that his grease is as mild as butter; that he delights in the mouths of rivers, where he browses the herbs which grow on the banks; that, in certain places, about ten or twelve leagues from Cayenne, they are so numerous, that a vessel may be filled with them in one day, by expert harpooners. Father Tertre, who gives a long account of the fishing of the manati, agrees almost in every article with the authors we have quoted. He remarks, however, that this animal has only four toes and four claws on each hand; and adds, that he feeds upon a small sea-herb, which he browses in the same manner as an ox; and that, after being satiated with his food, he searches for the rivers and fresh waters, where he browses twice a day;

* Hernand. Hist. Mex. p 324.

† Voyage en l'Isle de Cayenne, par Antoine Binet, p. 346.

that, when his belly is full, he sleeps with his muzzle half out of the water, which makes him observable at a distance; that the female brings forth two young, which follow her every where; and that when the mother is taken, we are certain likewise of having the young, who never depart from her, even when dead, but go perpetually round the vessel which carries her*. This last fact appears to be very suspicious: it is contradicted by other voyagers, who assure us that the manati produces but one at a time. As all large quadrupeds, and the whale tribes, produce one young only, analogy alone should prevent us from believing that the manati always brings forth two. Oexmelin remarks, that the tail of the manati is placed horizontally, like that of the cetaceous animals, and not vertically, like that of other fishes; that it has no fore-teeth, but only a kind of callosity as hard as a bone, with which it cuts the herbage; that it has thirty-two grinders; that it does not see well, on account of the smallness of its eyes, which secrete very little humour, and have no iris; that its brain is small; that, to supply the defect of good eyes, it has an excellent ear; that it has no tongue; that the organs of generation resemble those of man and woman more than any other animal; that the milk of the females, which he had tasted, is very good; that they produce but a single young one, which they embrace and carry with their hands; that the mother suckles it during a whole year,

* Hist. Gen. des Antilles, par le P. du Tertre.

after which it is in a condition to eat herbage, and provide for its own safety; that from the neck to the tail this animal has fifty-two vertebræ; that it feeds like the turtle, but can neither walk nor crawl on the ground*. All these facts are pretty exact, and even that of the fifty-two vertebræ; for M. Daubenton, in the fœtus which he dissected, found twenty-eight vertebræ in the tail, sixteen in the back, and six, or rather seven, in the neck. This voyager is only deceived with regard to the tongue, which is not wanting in the manati. It is indeed fixed, almost to its extremity, to the under jaw.

In the Voyage to the American islands, we find a very good description of the manati, and the manner in which it is harpooned. The principal facts, mentioned by this author, correspond with those already quoted: but he remarks, "That, since the coasts have been inhabited, this animal has become exceedingly rare in the Antilles; and that the one he saw and measured was fourteen feet nine inches from the muzzle to the origin of the tail. The whole body was round. The head was thick, and the mouth large, with great lips, and some long coarse hairs about them. The eyes were very small in proportion to the head; and the ears were only two small apertures. The neck is very thick and short; and, were it not for a small movement which makes it wrinkle, it would be impossible to distinguish the head from the body. Some authors pretend,"

* Hist. des Aventuriers par Oexmelin, tom. xii. p. 134.

he adds, "that this animal uses its two hands, or fins, for dragging itself along the ground. I made a particular inquiry concerning this fact; but no person had ever seen the animal on land; and it is impossible that it should either walk or crawl, the fore-feet, or hands, serving only to hold its young when sucking. The female has two paps which I measured, and found each of them to be seven inches in diameter, by about four of elevation. The teat was an inch thick. The body was eight feet two inches in circumference. The tail was like a large pallet, nineteen inches in length, fifteen inches broad at the widest part, and about three inches thick at the extremity. The skin of the back was double the thickness of an ox's hide, but much thinner on the belly. It is of a brown slate colour, and of a coarse grain, with thick and pretty long hairs of the same colour, thinly scattered over the body. This manati weighed about 800 pounds. Along with the mother, the young one was taken, which was nearly three feet long. A part of the tail was roasted on a spit, and we found it to be as good and delicate as veal. The herb upon which these animals feed is from eight to ten inches long, narrow, pointed, tender, and of a beautiful green colour. In some places, this herb is so abundant, that the bottom of the sea has the appearance of a meadow. The turtles likewise feed upon it*," &c. Father Magnin de Fribourg says, that the manati eats such grass

* *Nouv. Voy. aux Isles de l'Amerique*, tom. ii. p. 200.

as he can reach without coming out of the water.
 That its eyes are about the size of a
 filberd; that its ears are so narrow as hardly
 to admit a probe; that, within the ears, there
 are two small perforated bones; that the Indians
 hang these bones to their neck as a trinket.
 Its cry resembles the lowing of a
 cow*.

The West Indian manatis are always seen in
 droves about the coasts, and sometimes in the
 mouths of rivers, and it is likely, from the reports
 of Oviedo† and Gomara‡, that they frequent
 fresh water as well as salt: however, this fact
 applies only to the little manati, of which we
 shall speak hereafter; and it appears certain that
 neither the great West Indian manatis nor those
 of Kamtschatka, go up the rivers, but constantly
 keep in salt and brackish waters.

The neck of the great West Indian manati,
 like the Kamtschatkan species, is very short;
 the body very large and thick, as far as the origin
 of the tail, which diminishes regularly till it ends
 in the fin. Both of them also have very little
 eyes, and very small auditory holes instead of
 ears: both feed on fuci and other sea plants, and
 their flesh and fat (when they are not too old)
 are equally good to eat. Neither of them produce
 more than one at a time, which the mother em-
 braces, and frequently carries between her
 hands: she suckles it for a year, after which, it is

* Extrait d'un MS. du Pere Magnin de Fribourg.

† Hist. Ind. Oxid. lib. xii. cap. 10.

‡ Hist. Gener. lib. xxxi.

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in a state to provide for itself, and to eat grass. However, according to Oviedo *, the West Indian manati produces two little ones; but as it appears that, in this species, as well as in the Kamtschatkan manati, the young remain with their mothers till they are two or three years old, it may be that this author, having observed two little ones of different births following the same mother, concluded that she had two at a time.

Hist. Ind. Occident^e lib. xiii. cap. 10.

THE GREAT INDIAN MANATI*.

LE GUAT assures us that he has seen many manatis in the seas about the island of Rodrigue. "The head of the manati of this island," says that navigator, "is like that of a pig, except that its snout is not so sharp. The largest manatis are about twenty feet long. This warm-blooded animal, has a very rough, hard, blackish skin, with some hairs so thinly scattered as scarcely to be detected: it has small eyes, and two holes, which open and shut, and which have justly been called its ears. As it frequently draws in its tongue, which is not very large, many have said that it has none. It has grinding teeth. but it has no fore-teeth, and its gums are hard enough to pull up and masticate the grass. I never saw but one little one with the female, and I am inclined to believe that she produces but one at a time. We sometimes found three or four hundred of these animals together, grazing at the bottom of the water. They were so gentle, that we have often felt them, to choose the fattest: we passed a rope round their tails to pull them

* This animal, of which the count de Buffon makes a distinct species, may be reasonably suspected to be a variety only of the preceding. W.

out of the water: we did not take the largest, because they gave us more trouble, and, besides, their flesh was not so delicate as that of the young. . . . We never observed this animal on shore: I doubt if it could crawl, and I do not think that it is amphibious *."

The observations which Dampier has made on this animal deserve to be inserted in this place. "It is not only in Blewfield's river that I have seen the manatees, I have seen them also in the Bay of Campeachy, on the coasts of Bocca del Drago, and Bocco del Toro, in the river of Darien, and among the South Keys, or little islands of Cuba. I have heard of their being found on the north of Jamaica a few, and in the rivers of Surinam in great multitudes, which is a very low land. I have seen of them also at Mindanea, one of the Philippine islands, and on the coast of New Holland. . . . The manatee delights to live in brackish water; and they are commonly in creeks and rivers near the sea. It is for this reason, possibly, they are not seen in the South Seas, that ever I could observe, where the coast is generally a bold shore, that is, high land, and deep water close home by it with a high sea or great surges, except in the Bay of Panama; yet even there is no manatee. Whereas the West Indies, being, as it were, one great bay composed of many smaller, are mostly low land and shoal water, and afford proper pasture, as I may say, for the manatee. Sometimes

* Voyage de le Guat, tom. i. p. 93 et suiv.

we find them in salt water, sometimes in fresh, but never far at sea. And those that live in the sea, at such places where there is no river nor creek fit for them to enter, yet do commonly come once or twice in twenty-four hours to the mouth of any fresh-water river that is near their place of abode. They live on grass seven or eight inches long, and of a narrow blade, which grows in the sea in many places, especially among islands near the main. This grass groweth likewise in creeks, or in great rivers near the sides of them, in such places where there is but little tide or current. They never come ashore, nor into shallower water than where they can swim. Their flesh is white, both the fat and the lean, and extraordinary sweet, wholesome meat. The tail of a young cow is much esteemed; but, if old, both head and tail are very tough. A calf that sucks is the most delicate meat; privateers commonly roast them, as they do also great pieces cut out of the bellies of the old ones*."

These manatis, which Guat and Dampier saw at the isle of Rodrigue, and at the Philippines, appear to us to have many points of resemblance with the great West Indian manatis; however, we do not believe that they are absolutely of the same species, for it is hardly possible that these animals could cross from America to the East Indies. In the following article, we have produced facts which prove that they cannot travel to a distance, nor run over the open seas.

* Dampier's Voyages, i. p. 34.

THE LITTLE AMERICAN MANATI*.

THIS fourth species, smaller than the three preceding, is, at the same time, more numerous and more diffused in the warm climates of the New World, than the second: it is found not only on most of the coasts, but also in the rivers and lakes of the interior of South America †,

* CHARACTER SPECIFICUS.

TRICHECUS MANATUS. T. denitibus lanarius nullis. — *Linna. Syst. Nat. Gmel.* i. p. 60.

Trichecus (manatus) subpilosus, dentibus lanariis nullis, cauda horisontali loco pedum posteriorum. — *Shaw's Gen. Zool.* i. p. 245.

LE PETIT LAMANTIN D'AMERIQUE. — *Buff. Hist. Nat. pa. Sonn.* xxxiv. p. 231.

GUIANA MANATI. — *Penn. Hist. Quadr.* ii. p. 297.

GUIANA TRICHECUS. — *Shaw's Gen. Zool.* i. p. 245.

HABITAT

ad littus Guiana.

Pennant has noticed the above by the name of *Oronoko manati*; but, as there does not appear to be any good reason for distinguishing it from the Guiana species, I have considered it as the same, and have referred it to his *Guiana manati*.

Pennant properly remarks that he does not understand why M. de Buffon calls it *le petit*, for it grows to a vast size.

W.

† "Seven leagues from the town (Ilheos in Brasil), in the

as in the Oronoko *, the Oyapook, the Amazon, &c.: it is found also in the Bay of Campeachy, and about the little islands to the south of Cuba.

Father Gumilla relates, that there are immense numbers of manati in the great lakes of the Oronoko: "Each of these animals," says he, "weighs from six to seven hundred pounds. They feed upon herbs. Their eyes are very small, and the auditory passages still smaller. When the river is low, they come to pasture on its margin. The female always brings forth two young, which she carries at her paps, and holds them so firm with her two hands, that they never separate, whatever movement she makes. The young, when new born, weigh each of them thirty pounds. The milk of the female is very thick. Below the skin, which is much thicker than that of an ox, we find four strata, or layers; two of them consist of fat, and the other two of very tender, savory flesh, which, when roasted, has the flavour of pork and the taste of veal. These animals, when rain is about to fall, spring out of the water to a considerable height †." Both Gumilla and Tertre seem to be deceived, when they assert that the females produce two young

interior of the country, we meet with a lake of drinkable water, three leagues in length and breadth, in which there are different species of very large fish, particularly manatees, that weigh about 800 pounds. — *Hist. Gen. des Voyages*, xv. p. 230.

* *Hist. de l'Orenoque*, par le P. Gumilla.

† *Id. ibid.*

at a time: for it is almost certain, as formerly remarked, that they bring forth one only.

In fine, M. de la Condamine, who obligingly communicated to me a drawing of the manati, made by himself, on the river of the Amazons, gives a more perfect account of the manners of this animal than any other author. "Its flesh and fat," he remarks, "are analogous to those of veal: Father Acuna renders the resemblance still more complete, by bestowing horns on it, which Nature never provided. It is not, properly speaking, amphibious; for it cannot go entirely out of the water, having only, near the head, two flat fins, in the form of wings, about sixteen inches long, which serve it for arms and hands: it advances its head only out of the water, in order to reach the grass upon the shore. The one of which I drew a figure was a female. Its length was seven feet and a half, and its greatest width two feet. I have since seen them much larger. The eyes of this animal have no proportion to the size of its body; they are round, and only three lines in diameter. The auditory passages are still smaller, and appear like pin holes. The manati is not peculiar to the river of the Amazons, but is equally common in the Oronoko. It is also found, though not so frequently, in the Oyapoc, and in several other rivers in the neighbourhood of Cayenne, and on the coasts of Guiana, and probably elsewhere. This is the same animal which was formerly called *manati*, and now *lamantin*, at Cayenne,

and in our American islands ; but I believe the species is somewhat different. They are never met with in the high seas, and are even rare in the mouths of rivers. But they are found, at more than a thousand leagues from the sea, in most of the large rivers which fall into that of the Amazons, as in the Gualлага, the Pastaca, &c. In ascending the river of the Amazons, they are stopped by the Pongo (cataract) of Borja, above which they never appear*."

The great West Indian manatis never leave the sea, but the little manati prefers fresh waters, and goes up the rivers to the distance of a thousand leagues from the sea†.

It appears that these little American manatis frequent, alternately, the sea and the rivers, according as they find pasturage; but they constantly inhabit the shoal water of flat shores, and rivers that produce the herbs they feed upon. They are never met with on bold shores, or in deep waters‡, nor in the open sea at a great distance from land; for there they could not exist, since it does not seem that they eat fish: therefore they frequent places that produce grass; and it is on that account that they cannot cross the ocean, where no vegetable grows, and where they consequently would die of inanition:

* Voyage sur la Riviere des Amazones, par M. de la Condamine, p. 154; Mem. de l'Acad. des Sciences, 1745, p. 464.

† Id. *ibid.*

‡ Dampier, vol. i. p. 46.

therefore, we do not believe that the manatis of the Indian Sea, and those of the coasts of Senegal, are the same species as either the great or small American manatis.

Navigators * agree in saying that the little American manati, the subject of our present inquiry, does not feed entirely on the herbs that grow under water; but that it also browses those on the banks, when it can reach them by stretching out its head without leaving the water entirely, for it is not able to walk on land, any more than the other manatis, nor even to crawl.

The females of this species generally produce two little ones † instead of one, as in the great manatis. The mother carries them one under each arm, and presses them to her breasts, where they remain continually; and, when they are strong enough to swim, they constantly follow her, and do not abandon her when she is wounded, or even after her death, for they persist in following when the fishermen, with ropes, drag her to shore. The skin of these little adult manatis, like the large ones, is rough, and very thick: their flesh is also very eatable.

I have now given the substance of nearly all that is known concerning the manati. It were to be wished that some of the inhabitants of Cayenne, among whom there are several persons well acquainted with natural history, would examine

* Binet, Voy. a Cayenne, p. 346.

† Gamilla, Hist. de l'Orenoq.

this animal, and give us a description of its internal parts, particularly those of respiration, of digestion, and of generation. It appears, but we are by no means certain, that there is a large bone in the penis, and a foramen ovale in the heart; that the lungs are singularly constructed; and that it has several stomachs, as in the ruminating animals.

THE LITTLE SENEGAL MANATI.

THE species of the manati is not confined to the seas and rivers of the New World, but seems likewise to exist on the coasts and in the rivers of Africa. M. Adanson saw manatis in Senegal, from which he brought one of their heads, and gave it to me; and, at the same time, he obliged me with a description of this animal, which he made on the spot, and which I here insert in his own words: "I saw many of these animals. The largest exceeded not eight feet long, and weighed about 800 pounds. A female of five feet three inches in length, weighed only 194 pounds. They are of a blackish ash-colour. There are hairs thinly scattered over the whole body, in the form of bristles, that are nine lines long. The head is conical, and of a middling size, in proportion to the body. The eyes are round, and very small. The iris is of a deep blue colour, and the pupil black. The muzzle is almost cylindrical; the two jaws are nearly of an equal size, and the lips are thick and fleshy. It has no teeth but grinders, in either jaw. The tongue is of an oval form, and attached, almost as far as the point, to the under jaw. It is singular, that almost all au-

thors and travellers have given ears to this animal. I could not discover, in any of them, a hole sufficient even to admit a small probe*. He has two arms, or fins, situated at the origin of the head, which is not distinguishable from the trunk by any kind of neck, or by shoulders that are perceptible. These arms are nearly cylindrical, and consist of three principal articulations; the anterior one forms a kind of flat hand, in which the toes are only to be distinguished by four claws of a shining reddish-brown colour. The tail is horizontal, like that of the whale; and it has the figure of a baker's shovel. The female has two paps, rather elliptic than round, and situated near the pits of the arms. The skin is half an inch thick on the belly, nine lines on the back, and an inch and a half on the head. The fat is white, and two or three inches thick. The flesh is of a pale red colour, and more delicate than veal. The Jalofé Negroes call this animal *lereou*. It lives upon herbage, and is found in the mouth of the river Niger."

The little Senegal manati, which is of the same size as that of Cayenne, appears to differ from it, inasmuch as it has molar teeth (grinders)

* It is certain, however, that this animal has external auditory passages. M. de la Condamine informed me, that he had seen and measured them, and that they exceeded not half a line in diameter. As the manati has the power of contracting or shutting them, it is probable that they had escaped the observation of M. Adanson, especially as these passages are very small, even when the animal keeps them open.

and some hairs on its body, characters which suffice to distinguish it from that of America, to which navigators allow neither molar teeth nor hair; therefore, we presume that we may reckon five species of manati. The *first* is the great Kamtschatkan manati, which, as we have said, exceeds every other in size, and is without either molar teeth, nails, or hair. The *second*, the great West Indian manati, with molar teeth, nails, and some hairs on its body, and of a length not exceeding eighteen or twenty feet, whilst the Kamtschatkan manati measures more than twenty-three feet. The *third*, the great Indian manati, which is at present obscure, but which ought to be a different species from the Kamtschatkan and West Indian kind, since neither of them can cross the open seas for want of herbs to feed upon. The *fourth*, the little South American manati, which frequents equally the salt and fresh waters, and differs greatly from the three first in size, being more than two thirds smaller. And the *fifth*, the little Senegal manati, which is found in several African rivers *, as the little

* We may presume this to be the same animal that navigators say they have seen in some rivers of Congo, Angola, and Soffala, &c. They have mentioned them as follows †. "The rivers of Congo and Angola abound in fishes of different species; the Zaire produces a very remarkable one. . . . Nature has given it two hands, and a back like a shield; its flesh is very good . . . it feeds on the grass

† There are manatis on the coasts of Africa, and they are more abundant on the coast of Senegal than in the river Gambia. — *Oxymelin*, t. ii. p. 113.

Guiana manati is in those of America. These two little species differ, inasmuch as that the first has no teeth, and that the auditory holes are larger than in the second.

This is the least uncertain information that I

which grows on the edges of rivers, but never goes upon the bank: some of these fish weigh 500 pounds." -- *Hist. Gen. des Voyag.* t. v. p. 2. "These animals are found in the lakes, particularly in those of Angola, Quikite, and Angolou. . . . they are eight feet long, and have arms and hands, the fingers of which are hid in the flesh. . . . Their head is oval; the eyes are small, the nose flat, the mouth large, without any appearance of ears. . . . the natural parts in the male resemble those of a horse; the female has two well formed breasts." -- *Id. ibid.* "The same animals are caught about Soffala, on the eastern coast of Africa; they salt them for sea provision, and find them very good food; but if kept too long, it alters, and becomes dangerous to those who are troubled with the foul disease." -- *Ibid.* p. 93. "The manatee of the Sierra Leona has teeth in the bottom of its mouth. . . . the eyes are very small, and the ears will hardly admit a bodkin: it has two large fins, sixteen or eighteen inches long . . . its tail is very large, and the skin is a finger thick . . . the Negroes strike this animal with an iron harpoon fixed to a very long wooden handle. The manati flies when it feels the wound, but the handle of the harpoon, which often appears above the water, serves for a guide to follow by; when it stops, they again approach to throw other harpoons at it, and when, in the end, it is exhausted, they drag it to the shore." -- *Ibid.* t. iii. p. 240 et suiv. "The flesh of these animals is delicate . . . the choice bits are near the belly and the breasts; the fat is several inches thick, and not inferior to that of pork. . . . Lemaire asserts that there are more manatis in the river Senegal, than in the Gambia, and that they are not larger than a porpoise." -- *Ibid.* p. 376. "There are manatis also on the Gold Coast." -- *Ibid.* t. iv. p. 261.

have been able to collect on the subject of the different species of manatis; which, it may be perceived, are not as yet perfectly understood. Some navigators have mentioned the manatis of the Philippines, and Mr. Forster told me that he had seen them also on the coasts of New Holland; but we do not know if these Philippine and New Holland species may be referred to those of which we have spoken, or if they differ sufficiently to be considered as distinct.

